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HOW LITTLE LIME IN A SOIL WILL SUFFICE FOR ALL USEFUL PURPOSES?

There is no question in agriculture more important than the one placed at the head of this article. Many years ago the writer analyzed a large number of calcareous soils for the express purpose of satisfying his own mind what is the maximum amount of lime in land beyond which its presence does no good whatever? These researches led to the conclusion that two per cent. of the carbonate is as good as four, six, eight, ten, or twenty, for all agricultural purposes. Indeed, the instances are rare where one per cent. of lime exists, that the addition of more is beneficial, or pays the cost of the application. Rain water in passing through a stratum of earth which contains from 1½ to 2 per cent. of free carbonate of lime, becomes so charged with dissolved lime, (held in solulion by carbonic acid derived partly from the atmosphere and partly from the decaying vegetable matter in the soil through which the water has percolated,) that *tufa* is formed when the water emerges from the earth in springs. Tufa is a simple mineral, and precipitated carbonate of lime. The precipitation results from the escape of the carbonic acid into the atmosphere, which holds the carbonate of lime in solution, as the water runs from a spring. A case in point may be seen on the farm of Gen. Harmon, in Wheatland, Monroe county. The tufa, or marl, is there being formed at this time, as it is in many other places in that and the adjoining towns. We never found a soil in that excellent wheat district that contained over two per cent. of lime; nor does the use of lime increase the crops on Gen. Harmon's farm. For many years gypsum has been used to advantage by nearly all the farmers of Monroe and Livingston counties. This mineral abounds in Wheatland in beds, but is not generally diffused through the soil. Like tufa, it is constantly being formed, as is sulphuric acid, (one of its constituents,) by the chemical union of the acid named with lime. Oil of vitriol, or sulphuric acid, is formed by the union of oxygen with sulphur, as the latter exists in combination with iron. There are springs in Monroe county whose water is charged with sulphuric acid. All such water coming in contact with lime must form gypsum. Now, there are thousands of soils that abound in iron, alumina, (the basis of all clay,) and sulphur or sulphuric acid, which lack lime. So, too, there are thousands of soils that abound in the phosphate of iron and the phosphate of alumina, which lack the calcareous element required to form bone-earth, or phosphate of lime.

Appreciating the value of gypsum and bones as fertilizers, the reader is prepared to consider the importance of lime in all farming lands. The least quantity that will neutralize all the organic and mineral acids that may be developed in the soil, and have a small excess of the alkaline earth, is the dose of marl or lime needed to secure the highest possible benefit from its application. A soil may have one-tenth or nine-tenths

of the lime required to fulfil all the functions of this mineral; and therefore the dose to be administered varies indefinitely. Of all chemical manipulations, that of separating carbonate of lime from a soil is the most simple and satisfactory; but a vast number of analyses must precede any trust-worthy generalizations in answer to the question, "How little lime in a soil will suffice for all useful purposes?"

Thousands of cases might be cited where the limeing of meadows, pastures and tilled lands has operated beneficially; but, unfortunately, no one knows or ever knew, the quantity of lime in these soils at the time more was applied to them. To remedy this defect, we intend to analyze to the extent of ascertaining the amount of lime in a cubic foot of the soil, a large number of samples from the districts where marling and limeing are most extensively practiced. One farmer in the State of Delaware who uses over seventy tons of Peruvian guano a year, at a cost of some $3,500, told us a few days since, that about a million bushels of lime a year are bought and used by the farmers of that little State of three small counties. Whatever elements of grain, grass, and roots, air and water do not supply, the cultivators of the poor soils of that State are compelled to furnish. This is bringing tillage and husbandry up from an empirical or imitative art, like squirrels gathering into their holes the nuts that nature produces, to the dignity of a study, and a learned profession. How much of the substance of the soil is consumed in growing an acre of wheat yielding twenty-five bushels, or one of corn, producing fifty bushels? What part of these and other crops will air and water supply?

Some of the farmers of New Jersey, Pennsylvania, Delaware, Maryland, and Virginia, are beginning to investigate these interesting problems. The readers of this journal for the last ten years need not be told that the writer studied them at an earlier date. These problems are inseparably blended with the action of lime in the soil, as the most successful improvers of poor lands in the States named, have found out by repeated experiments in marling and limeing. Such improvements, including the purchase of bone dust, super-phosphates, gypsum, poudrette, guano, and stable manure, are expensive; and whether too much or too little lime is used may decide the important question whether a *loss* or a *profit*, is realized in the operation. The right use of manures of all kinds, is a matter yet to be decided by experiments conducted with great care and on true scientific principles. One thing, however, may be regarded as settled, and that is, the fact that any given quantity of the dung of animals, whether of birds, cattle, sheep, horses or swine, will produce more grass and grain on a calcareous than on a non-calcareous soil. If any one doubts this, we respectfully invite every agricultural society in the United States to investigate the causes why limestone lands are richer than others; and why so many millions of tons of lime, since the conquest of Spain, France, and Britain by the Romans, have been used as amendments to arated fields. Lime *alone* never formed the thousandth part of a grain of wheat. There is usually twice as much magnesia, and five or six times more potash in a bushel of wheat, than lime. It is then an exceedingly interesting question, how little is enough to secure the highest fertility to all improved lands. No society, or legislature ever afforded us the least assistance in prosecuting researches connected with the critical study of soils; and as we have no peculiar interest in agricultural science, and not the means to labor for nothing, we are compelled to wait for public opinion to ripen, however unpleasant the long delay. The time approaches when capital to the extent of indefinite millions, will be invested in making American lands precisely what they ought to be, to yield their maximum of all desirable and appropriate crops. In this great agricultural labor, lime will play a conspicuous part. If one were to separate all the lime in an acre of the best wheat lands in Western New York, to the depth of ten inches, he would have from ten to twenty tons. Assuming that an average of five tons per acre are needed on four-fifths of the improved farms in the Union, we discover at once a market for 500,000,000 tons

of lime. It can hardly be burnt, transported to the fields, where it is to be used, and spread, at less than two dollars per ton, on an average, so that the limeing of 100,000,000 acres involves an outlay of one thousand million dollars.

These suggestions are made to show the vast importance of more knowledge than we now possess, of soils and their products. This country throws away one hundred million dollars a year in misapplied labor and capital, rather than expend a few dollars for the careful and systematic investigation of the laws of nature, in their application to all farming operations. If ignorance were wealth, how rich we should all be!

There is not a single element of fruitfulness that has been thoroughly studied in this great republic. Its citizens are content with the idle repetition of scientific terms and phrases, without increasing in wisdom. Hence it is, that in all America there is not one agricultural school to lead the minds of youth from the few things known about the principles of agriculture, to the more than Californian wealth which exists in the unknown, but within the reach of all. How much longer shall we cling to that ignorance which is nothing but weakness, and turn our backs upon that knowledge which is power?

THE PROPER MANAGEMENT OF SANDY SOILS.

A MUCH esteemed friend has requested us to write an article on the proper management of sandy soils, especially in regard to those which have been "hard run," or much impoverished by successive cultivation of wheat and corn. The subject is one of great importance, and merits a much fuller investigation than the crowded state of our columns this month permits. We regret this the less in the hope that some of our able, experienced correspondents, will take up the matter and fully discuss it.

Soils containing a large proportion of clay and lime, or such as are naturally good wheat soils, stand cultivation and the removal of large quantities of grain much better than light, sandy soils. Various reasons are assigned for this. It is said that these heavy soils contain originally more of the organic and inorganic constituents of plants than light ones. Their compact nature by excluding the air, prevents decomposition, and so the matter locked up in them remains without loss till by plowing and cultivation the air is admitted, and these latent elements become active, soluble, and available as food for plants. Again, it is probable that when these soils are under-drained and properly tilled, they retain the greater portion of the ammonia brought to them in rain water. Sand has not this power to retain ammonia at all, and sandy soils possess it to a small degree only.

The manner in which clays retain ammonia is a matter of dispute. It has been supposed that they held it mechanically; but the recent investigations of Mr. WAY indicate that the ammonia enters into chemical combination with the double salt of silicate of alumina and soda, decomposing it and forming a double salt of silicate of alumina and silicate of ammonia; and that the large amount of silicic acid which the straw of wheat contains, is taken up by the plant as silicate of ammonia. This double salt of alumina and soda is found not only to retain the ammonia of rain water, but also to attract it from the atmosphere when brought in immediate contact with its particles. Hence the value of summer fallows on heavy soils. Not only is the decomposition of the soil facilitated by the admission of air, but this air actually carries with it the very fertilzer most needed by our wheat crops—ammonia.

But here there is a wide and most important difference between clays and sands. Sandy soils contain but little of this double salt, to attract ammonia from the atmosphere, or retain that brought to it in rain. Summer fallows, or frequent plowings and harrowings on such soils, are of no use except to destroy weeds. What is to be done? In

the heavy soils the clay retains the ammonia of the rain and air. In sandy soils we have not this retaining substance to any extent, and must therefore supply one. We are privately informed that Mr. WAY is very sanguine in regard to manufacturing this double salt we have spoken of, and that he is now experimenting on the subject. We hope he may succeed, and that the method of composting it will be such as every farmer can practice on his own farm; otherwise the weight of the article will prevent its extensive use. Carting marls on to sandy soils has been practiced in England and this country, to great advantage; but if we could pick out the particular ingredient of value in these marls, and apply it easily to light soils, the advantage would be obvious, and such as to secure its universal adoption. In the mean time, we must grow *plants* that *retain* this ammonia of rain and air. Wheat, corn, barley, oats, buckwheat and timothy, *destroy* ammonia during their growth. Clover, turnips, peas, beans, lentils and vetches, retain the ammonia brought to them in rain; and when consumed on the land, or plowed under, furnish the required ammonia for the following wheat or corn crop.

The proper management of sandy soils is here indicated. Grow fewer wheat, corn, barley, and timothy crops; and more clover, peas, and roots, and let these all be consumed on the farm. Under ordinary circumstances, never sow wheat without seeding the land down with twelve pounds of red clover in the spring. Do not let it lie in grass more than two years, for as clover is a biennial plant, the third year you will get very little but cereal grasses. Turnips may be sown with corn after the last hoeing, and though you get little but leaves, these will help to increase the amount of available ammonia on the farm, and so do good service.

As long as good crops of clover can be obtained, we may rest assured that there is no deficiency of mineral matter in the soil. But the time will come, and that soon, on sandy soils, when good clover crops can no longer be grown. To prevent this, apply all the leached and unleached ashes, bones, and lime at your disposal, on the clover crops, and they will do good service. On no consideration let them be wasted. They will be needed sooner or later to restore the phosphates and potash removed in the grain and bones of animals sold off the farm.

Superphosphate of lime, drilled with the seed, will be found the best of all manures for ruta baga and other turnip crops. It is on sandy soils that turnips succeed best; and it is these soils that are most improved by the growth of turnips and clover. The light, blowing sands of Norfolk, England, which fifty years ago were barely worth cultivating, have been made by turnip culture and sheep husbandry the most valuable and productive land of Great Britain. Sandy soils, or "turnip soils," are now far more valuable than the heavy, or "wheat soils." If we might believe English protectionists, the heavy wheat soils cannot now, with free trade prices, be cultivated with wheat without serious loss, and must be laid down to permanent meadow.

With the increase of population and manufactures, we shall obtain higher prices for *meat*. Its production, and the growth of turnips, clover, and other cattle food, will be attended with more direct profit than at present. More turnips and clover will be raised as food for cattle, and our average yield of wheat and corn will be greatly increased. Sandy soils will be benefited by such a change more than our heavy, good wheat lands.

On sandy soils there is often accumulations of muck or peat rich in nitrogen, containing from one to two per cent. of this valuable fertilizer. (Ordinary barnyard manure contains only one-half of one per cent. of nitrogen.) It will be seen that this muck, if dried and decomposed, will be a most valuable manure for sandy soils. It is necessary to decompose the muck before its constituents can be taken up by plants. Ashes and lime readily decompose it, and are often used for this purpose by first rate farmers; but we should no more think of mixing lime or ashes with muck than we should with farmyard manure. Their tendency in both cases is to drive off the ammonia, and to render

the mixture of comparatively little value. We would compost the dry muck with horse manure, and with any animal or rapidly fermenting matter we could obtain. We would also use the dried muck as an absorber of the liquid excrements of the stable and hog pens. Any means the farmer can adopt to accumulate ammonia, especially on sandy soils, will be attended with direct advantage in increased crops.

TERRA CULTURE.

"It contains much, sir, both of what is new and what is true; but, unfortunately, what is new is not true, and what is true is not new."—*Sheridan.*

Mr. J. S. Woodward, of Wilson, Niagara county, N. Y., and several other correspondents, have requested information in regard to Russel Comstock's discovery of "a universal law in vegetation," and on his system based thereon, called "terra culture;" and whether we would recommend a young farmer to attend his lecture. We have also received several communications from individuals who have heard the disclosures, all of which we should like to publish did our space admit.

We have hitherto considered the "discoverer" unworthy of an extended notice; but as the subject appears to be creating considerable interest, we will freely express our opinions. Before giving them, however, we shall endeavor to tell what this wonderful *secret* is, if indeed we are able to do so; for, after listening to Mr. Comstock for several hours, we had to ask him, in good faith, what there was in all the long and incoherent array of words we had been listening to, that he considered *his secret*, and *a law of nature* discovered by *him*, for the divulging of which we had paid the dollar. But some of our readers may be ready to ask if an obligation of secrecy was not imposed, and if it is fair and honorable to make public the information promised to be kept secret. To this we reply: If this pledge was made under false representations—if we have been willfully deceived by this pretended discover of a *new natural law*—if his wonderful *secret* is all a *humbug*, kept up for the purpose of robbing farmers of their dollars, and all that is of any real value in these disclosures is to be found in books accessible to all,—then it is not only *right*, but it becomes our duty as conductors of an agricultural journal, to expose this whole matter, and if possible prevent this gross imposition. But if this does not satisfy Mr. Comstock of our right to make public his impositions, he has the satisfaction of knowing that he was the first to violate the bargain, and thus released us from all obligation.

We observed that we had difficulty in ascertaining what Mr. Comstock claimed as his secret, even after we had listened to his lecture for several hours; and yet Mr. C., in his petition to Congress for an appropriation, says "the reality of his discovery and its application to the whole vegetable kingdom is demonstrated in *less than thirty words.*" It was perhaps unfortunate for us that we were so dull as not to more readily comprehend the Professor's teachings; but we have the consolation of knowing that all others we conversed with were as ignorant as ourselves. But, for the *secret.* The point of union between the roots and the trunk or stem of a tree or plant, and which gardeners call the *collar*, the Professor declares he has discovered to be the *seat of life*, and that in all trees and plants this collar, or *seat of life*, should be just even with the surface of the ground. This is all there is of this wonderful discovery of a new *natural* law, to learn which the farmers are called upon to pay out their dollars, for the discovery of which he petitioned Congress to vote him about a million of dollars, using the following pathetic language:

"For the honor of the Republic, for the honor of the age, and for the interest and comfort of the living, as well as the unborn, let not that discovery which may cause two seeds to ripen where one

now does, which prevents the premature death of all cultivated trees, which has been searched for in vain during the history of all civilized society, die with the discoverer for want of the action of the United States Congress."

Now what there is new or *secret* in this, except a *name*, we can not perceive. The injurious effects of planting trees deeper than the *collar*, have been proclaimed by good gardeners for these many years. In an excellent article on *Deep and Shallow Planting, and their effects on Trees and Plants*, in the *Annals of Horticulture* (London) for 1848, we find the following remarks:

"Among the conditions imposed on the planter should be that of supporting, by some means, all shrubs and trees above a certain height, and also that of planting nothing lower in the ground than will bring the *collar* of the *root* level with the general surface. * * * * In no case can a tree or plant (except those of the nature we have mentioned) flourish if the collar be lower, that is, materially lower, than the surface. * * * * First, on no account plant anything deeper in the earth than it has been before; let the collar of the root be level with the general surface, or above it, for if the roots do not like to be so shallow, they will of themselves go down lower. * * * * If any of the doubtful will take the trouble to plant two young fir-trees, one six or eight inches below the collar, and the other exactly the depth of the collar, they will convince themseves in one season of the necessity of attending to these few hints. * * * * With the exception of the vine, and some few that strike root at every joint, it is as important to keep the collar well up to the surface, and the roots spread, as it is to plant them at all."

In *Bridgman's Young Gardener's Assistant*, published in 1845, we find the following:

"In transplanting fruit trees, let the collar, or that part from which emanate the main roots, be near the surface. * * * * With a view to illustrate the evil of deep planting, I would observe farther, that when cabbage plants are transplanted in proper season and on good fresh soil, they generally prove uniformly good; whereas, if it should happen, as it sometimes does for want of suitable weather, that the plants cannot be transplanted until they get crooked and overgrown, so as to require deep planting to support them in the soil, such plants, like diseased peach trees, decay first in the bark, between earth and air, and then, from being deprived of a natural circulation of the vegetable juices, die, and discharge their putrid matter in the earth, to the destruction of such other plants as may be inserted in their stead. I have frequently known a land of cabbage plants filled up half a dozen times, and the crop at last scarcely worth gathering, whereas, could the plants have been set out while dwarfish, and inserted their proper depth in the ground, the cultivator would have been rewarded a hundred fold. I dislike *tautology*, but cannot avoid repeating my humble opinion, that *deep planting* and injudicious culture are the causes of most of the diseases and failures of fruit trees."

Lindley, in his *Theory of Horticulture*, when speaking of transplanting trees, and more particularly of forest trees, says:

"Place them as nearly as possible in the same condition, with regard to the soil, that they were in before removed."

From these extracts it will be seen that this *great secret* has been known to writers on horticulture and vegetable physiology for these many years, and the proper course urgently recommended. Professor Comstock recommends the same course, only changing words and calling what gardeners call the *collar*, the *seat of life*.

"Strange such a difference there should be
'Twixt tweedle dum and tweedle dee."

The bad effects of too deep planting Mr. Comstock says is to cause the tree to throw out roots above the natural seat of life, and thus the seat of life is removed higher up, and the old roots die, as well as the stem or branches, and a new shoot is thrown up from the new roots, which the Professor calls a sucker. Now we think the Professor would find it difficult to make many of our fruit trees throw out roots above the natural *collar*. Some plants, (grape vines, for instance,) will freely throw out roots from every joint, and these are seldom injured by deep planting. We have planted vines raised from layers, having a fine mass of roots at two joints, and after five years of fine growth and fruitfulness, having occasion to remove the vine, found the lower roots healthy and vigorous. A little experience we should think would teach Mr. Comstock his error in this respect.

From the many communications received we select the following, and leave the subject for the present:

"INTERESTING INSTANCES OF THE GROWTH OF TREES, GRAIN, AND VEGETABLES, CONTRARY TO 'TERRA, OR SKIN-DEEP CULTURE.'—1st. A peach tree standing near where I wished to dig a cellar, a bank of rich dirt eighteen inches or two feet high was thrown around it, and the result was, not the death of the tree, Mr. COMSTOCK, [he asked me if it did not kill the tree,] but an abundance of fruit, which ripened nearly a month earlier than the year before, and so much better that you would not suppose that it grew on the same tree. This was some six years since, and the tree is still flourishing and fruitful.

"2. An old, favorite cherry tree, at my father's, twenty years since, treated in precisely the same way, is still living and thrifty.

"3. A little east of the culvert where the Irondequoit passes under the great embankment, an orchard was buried in some places quite to the limbs of the trees, by a break in the canal some twenty years since. I believe that not a solitary tree has died in consequence, and the whole appear as thrifty as other orchards in the vicinity.

"4. A tamarack tree, around which the ground was raised some eighteen inches, in digging my fish pond, has grown rapidly ever since—five or six years.

"5. Two fine asparagus roots were accidentally covered, I do not know how deep, with rich mold scraped out of a ditch. This was in the fall. A year from the next spring, rather late, some stalks of asparagus, nearly as large as hoe handles, came up near the bank of the ditch; while my other asparagus, that happened to be terra-cultured, bore little spindling stalks. The shoots from the other found their way out of the bottom of a hole which I dug to set a barrel in, as a reservoir for a water ram.

"Before the invention of gang-plows and drills, we used to plow in our wheat by guaging the plow so as to cut a furrow four or five inches deep. The result was not spindling stalks and a poor yield, but wheat as stout and thick as it could grow, often yielding forty or fifty bushels per acre on good land.

"Now, Messrs. Editors, it will probably be obvious to you, and others who have been admitted to the mysteries of Mr. COMSTOCK'S system of terra culture, that what took place in relation to those trees and garden plants which I have mentioned, would have proved fatal to them by removing the seat of vitality from—I am not permitted to tell where. So of grain: he says that by covering it so deep, [Mr. Editor, if I am likely to 'let the cat out,' you may step on my toes,] the point of vitality, or seat of life, will be injured, and long-jointed stalks and a light crop will be the consequence.

"Mr. C. says that his system is according to nature, if I understand him. Well, after all, dame Nature is not so difficult and capricious as some people imagine. We will suppose two or three cases: The farmer, in clearing off his land, leaves here a nice hickory, there a butternut, and a little further a maple, for fruit or shade. These are in a state of nature, or something like 'terra culture.' Pretty soon three or four yoke of oxen are tearing the plow among the roots of these 'slim saplings,' and year after year this process of cultivating and scarifying goes on. What is the result? Not the death or decay of the saplings; but instead, the large, thrifty, symmetrical ornaments which adorn our fields, with grains nearly an inch thick, as we find when we cut them for timber.

"The asparagus is said to have been originally a sea-plant, but accommodates itself on terra-firma, and with plenty of its original seasoning furnishes us with one of the best dishes which our gardens produce. In fact she seems to smile approvingly on all right efforts which we make to improve her productions. By *thorough* culture (not "terra culture") she gives us beautiful flowers and fruits in place of those which were ordinary and worthless. Ever recuperative and vigorous, if, in cultivating among our trees, we break a root, she immediately sends out numberless smaller fibres and the growing process goes on as well, and perhaps better, than before, Mr. C.'s little dry sticks to the contrary notwithstanding.

"But there is one thing she does not like, and that is to be robbed of the food which she needs to bring her productions to perfection; and what the *Genesee Farmer* has been urging for years in regard to this robbery, we shall find to be true by and by.

"Mr. C. says his system will do away with the potato disease. Was his system followed thirty or forty years ago when this disease was unknown. His substitute of ———, instead of deep and thorough cultivation among corn and potatoes, might answer in a four foot bed in the garden, but in a twenty or fifty acre lot it would be impracticable and wasteful. Manure on the surface of the ground loses one-half or two-thirds its value by evaporation.

"Well, Mr. Editor, perhaps I have said enough; I don't know as I have made out much, but have the vanity to think that the reason is, there was not much against which to work; and I have, from my own observation and experience, come to the conclusion that "terra culture" is a humbug that is not worth the dollar. P. PARKS.—*Victor, N. Y.*"

Mr. P. will not be understood as *recommending* deep planting, but *thorough culture*, which COMSTOCK says is labor worse than wasted. Mr. C. stated that any tree covered above the "*seat* of life" would certainly *die*, this being a *natural law*, and to it there was no exception.

HINTS.

The present is the last winter month, and a few reflections at this time may be useful. As this has been, in almost all parts of the country, an "open" winter, it afforded a good opportunity to repair fences and gates and do other out-door work, which we will suppose has been attended to; if not, improve the time the present month. Are the implements all in order? The blacksmith is now at leisure, and will do any repairing you need without hurry, and consequently well. It will be very annoying if you leave such things until you have to lose half a day's work running to the blacksmith's shop, and when you get there perhaps find him so busy that he can scarcely attend to your wants. If you want anything new, now is the time to take a jaunt to the city or village and make your purchases. Some men are always "*bothered*," and half the time out of temper because they neglect such things until work "drives" them. It is always better to "drive" work, than to be "driven" by it.

Now, too, is the time to make arrangements about the disposition of your lands. You have time to think, and *thinking* is what distinguishes the farmer from his ox. Consult your intelligent neighbors; consult your agricultural papers and find out what others have done under similar circumstances, and with what results. Weigh the opinions of all carefully, make up your mind with caution, have your plans well matured, and when the season is right to strike the blow, you are ready. You have no need to halt or hesitate.

In the fall you probably noticed some seed that you thought at the time you would like to try another season. Get it now if you can, for when you get busy you will forget it; or, if you think of it, will not find time to procure it. Think this matter over a little, and after you have concluded what change of seed you ought to make, or what new crop you will introduce, do it up at once; have all ready, and you will not have to say, at the close of the next season, that you have left undone many things that you intended to do. Every man that observes and thinks, learns a little by *experience* every season that he cultivates a crop. Some things prosper under some circumstances and fail under others. This is generally noticed at the time, but too often forgotten because no memorandum is made of the circumstance that can be referred to at leisure. Think over the results of the past, and gain knowledge for the future.

In your reading the present winter you have noticed some things which looked very plausible and which you mentally resolved, at the time, you would test for yourself. This is right; but unless you have it very firmly fixed in your mind, or have it in your memorandum book in black and white, ten chances to one but you will forget it just at the time you intended to put it in practice. Whatever experiments you make, try carefully so that you be not deceived yourself nor deceive others. Never guess at weights or measures, or quantity of land. It always looks bad for one to say, when giving the result of any experiment, the quantity of land was "*about*," and the yield "*about*" so much. If you test any special manure to ascertain its value, it is best to try part of the same field with barnyard manure and part without any. If this was done, it would not be as easy for manufacturers of manure nostrums to get certificates of its value. How few know which is the most profitable crop they raise, or how much is expended in manure and labor in raising any crop. It is well to keep an account with the different crops and fields, so as to ascertain what pays the best for labor and expense. This is the way business men do, and why not farmers?

Have you tried root crops—carrots, ruta bagas, &c., for feeding stock? If not, perhaps the present season is just the time to test the matter on a small scale. Perhaps some persons in your neighborhood can give their experience; if not, you can find the testimony of many in the agricultural papers.

BRITISH AND AMERICAN AGRICULTURE.

(*Continued from Page* 17.)

B. I see from the newspapers that the winter in England and France has been as unusually mild as with us.

A. So it would appear; yet, as a general rule, the weather in Europe is reverse of what it is here. Last winter, in England, was remarkably open, while here it was very severe. Last fall, in England, was one of the wettest experienced for a long time, so much so that a very large proportion of the land intended and prepared for wheat, could not be sown. If, however, the winter has been as warm as asserted, I have no doubt much of this land has been sown. Wheat is often sown as late as December, and does well.

B. What is considered the best time to sow wheat there, and how much do they sow to the acre?

A. The last week of September and the first of October is considered the best by most good farmers. The quantity of seed sown, varies exceedingly in different districts; from *one peck* to three and a half bushels. Some of the "new lights," such as DAVIS, MECHI, HUXTABLE, and SMITH, have advocated very thin sowing, and they have undoubtedly obtained very large crops from not more than a peck of seed per acre. Their writings, example, and results, have had some influence in reducing the quantity of seed sown per acre. Many farmers I met with who, twenty years ago, thought three and a half bushels of wheat none too much seed per acre, now think two and a quarter amply sufficient. They have, however, failed to convince practical farmers of the economy of sowing only a peck or even a bushel of wheat per acre. They find that while in many instances thin sowing produces excellent crops, those who adopt the system on a large farm have invariably more or less land that is much too thin, and either has to be plowed under and sown to spring grain, or yield a very indifferent crop. The loss on these few acres more than counterbalances the gain by sowing thin.

B. I suppose they always drill in their wheat and horse or hand hoe it in the spring.

A. Most of the wheat is now drilled in. It is commonly estimated that the drill saves half a bushel of seed per acre, and gives, at the same time, a larger crop. It is generally drilled about six inches apart, *and is not hoed.* Those who hoe their wheat, drill it about a foot wide; but the practice of hoeing is anything but common.

B. In the last volume of the *Genesee Farmer* there was a cut of a horse-hoe for wheat that appeared to me to be well calculated to perform the operation with economy and speed. I have often wished we had some such an implement here. Our lands are now pretty clear, and I think it would do good service on our Western New York lands.

A. I have seen the wheat-hoe you speak of at work. It is a good thing, but like all the English implements, it is too heavy and complex. Unless the rows of wheat are drilled as straight as an arrow, you are sure to cut up as much wheat as weeds; and, in any case, it requires a strong man with a steady hand to guide the hoe straight.

B. I should think some of our implement makers could lighten, simplify, and cheapen this hoe, improve it, or make a new one that would do good service and come into general use. Labor is so much higher with us than in England, that the difference in favor of horse-hoeing is much greater here than there. Don't you think it would pay to hoe our wheat if it could be done cheaply.

A. I think it would, but I doubt very much whether the practice can ever generally prevail here. The land would not be dry enough to hoe much before the first of May, when the wheat is growing so rapidly that it would be difficult to hoe a considerable breadth before the plant would be so far advanced as to be injured by it.

B. It appears to me that you think there is but little in the best system of British agriculture that we can adopt here with advantage.

A. If we understood the principles of their agriculture better, we might draw our own deductions from them and modify their practices and adopt new ones suited to our peculiar circumstances. It is in this way that we can profit by the experience of European farmers, *and only in this way.* The farmer who, by empirical experience, discovers the best way of cultivating the various crops on his own farm, is worthy of much praise and greatly benefits the farmers of his immediate district, who profit by his example; but he who searches after and discovers the *principles* on which

a judicious system of agriculture is based goes far beyond this, and benefits not only his immediate neighborhood, but the intelligent farmers of the whole world. I wish, for our own benefit and national credit, that we had some institution set apart for discovering new principles in agriculture. As I have before said, we have in this country better means in operation for *diffusing* agricultural knowledge, than any other nation in the world; and yet what does all this immense machinery *create* in the way of knowledge? Our scores of agricultural papers, our State and County socities, the empirical experiments of hundreds of farmers, carried on as they are at vast expense, positively generate not one single principle of agricultural science that can be universally applied in general practice.

B. You are getting quite warm on the subject. Did I not know to the contrary, I should suppose you underrated the value of our agricultural papers, societies, exhibitions, &c. I know you do not, for I have often heard you say that these papers and societies were of incalculable value to the farmer. The papers give us the experience of others, and often contain suggestions for cultivating crops and for performing all the multifarious labors of farm management to the best advantage, such as we should never have thought of ourselves. Our exhibitions of farm products, the test of skill in plowing, &c., stimulates us to exertion and renewed strife after improvement, which must be productive of much good.

A. That is all very true. The societies and papers are good and indispensable as a superstructure; but to accomplish their greatest good to agriculture, it is absolutely necessary that they rest on a firm, well-demonstrated, experimental basis of science. At present we have the superstructure without such a foundation. The baneful consequences to agricultural science are too apparent to be disputed. What paper or society has ever told us practical farmers the *reason* why plowing in a crop of clover benefits the following wheat crop, while a crop of buckwheat does not. Scientific experiments have demonstrated the reason; and now it is as clear as noonday. What we want is similar experiments in our own country, on our commonly cultivated crops.

B. You think, then, that we can derive no benefit from an intimate acquaintance with the various modes of British husbandry, but that we must demonstrate principles for ourselves, and trust to our own ingenuity for applying them to the art of agriculture.

A. I will not exactly say that. I think I have learned considerable by my visit to Europe, though I cannot point out the particular parts of tillage in which we might profit by English practice. Their system of under-draining is reduced to a science, and no one can personally examine the different modes of draining there without deriving much valuable knowledge, such as would cost him many years of dear bought experience to acquire here.

B. I must have a little more conversation on the matter of draining next time we meet. I intend, like yourself, to under-drain one of my fields this year, and shall be glad of any hints and directions.

A. It will give me great pleasure to assist you all I can. I believe nothing will so much improve our national agriculture as under-draining, and I am pleased that so many are going into it. Hitherto we have had to pay exhorbitant prices for draining tiles in this neighborhood, but I am told that parties are now making arrangements for their manufacture in Rochester, and that we shall obtain them at a much cheaper rate.

B. Bye the bye, I have just been reading an account of the Smithfield Club Cattle Show. It appears that the tenant farmers have carried off most of the prizes, beating the Earl Ducie, Duke of Richmond, and his Royal Highness Prince ALBERT, and other noble competitors. The fact is a significant one. These amateurs breeders, that spare no expense in purchasing the best stock, and do not care even if they loose considerable money in keeping it, have been beaten by common practical farmers who adopt the business as a means of making money. Time, care, judicious selection, and personal attention in stock raising, must ever triumph over mere theorists and amateurs.

A. The Earl Ducie and Duke of Richmond, however, are by no means "mere theorists." I believe there is not a better judge of cattle in Great Britain than Earl Ducie.

B. So much the more credit then to the farmers who beat him. The weight of the prize sheep at the last Smithfield show, as given in the papers, is hardly to be credited. One in the "long-wooled" class, weighed, when dressed, 556 lbs., and had besides 49 lbs. rough fat. In the "cross breeds," one gave 524 lbs. carcass and 57 lbs. rough fat, with a "hide" of 76 lbs. In the "short wools," the heaviest carcass was 489 lbs. The first prize "Devon steer" yielded 948 lbs. beef, 145 lbs. rough fat, and 68 lbs. of hide.

RUTA BAGA—WHAT IS A MAXIMUM CROP?—Last year I received the first premium at our County Fair, for my crop of ruta baga, yielding at the rate of sixteen hundred and sixty-six bushels per acre—the largest crop ever reported in this country. My report of this crop has been extensively copied, and has been received by some with distrust. An attempt to sustain that report seems to be justified by the importance of the subject, and demanded in self-defence.

It is objected that so large a crop has never been produced even in England, and it is inferred that therefore I must have been mistaken.

Now, in the first place, I protest against this inference; it is a *non sequitur*. Why may I not raise a larger crop than England? England *has no superior natural advantages*. The only advantage claimed is that of *climate;* and that is a mere assumption, and has not been proved. *Our* climate has been unjustly condemned *without a trial*. All the advantages were on my side. By beginning where England left off, I had the full benefit of her experience. Her crops are cultivated by the ignorant. Intellect and science may plan and direct, but do not plow or hoe. Her laborers do not *reason;* they only work. My crop was cultivated entirely by myself, and not a blow struck without a reason. My motive was an inflexible purpose to advance the agricultural art, while theirs was to secure their dinner and their rent. In competition with such human machines, ought not I to excel? The soil of England has been worn for two thousand years; mine was new. Hers almost entirely artificial; mine as formed by the laws of nature; in it God has been collecting and garnering up the elements of fertility for six thousand years. To believe it inferior to the man-made soil of England, is absurd. We *ought*, then, to produce better crops than England.

This objection, then, proves nothing, if it were true; but it is not. Larger crops than mine have been raised in England. My crop would probably weigh forty tons; but the *Working Farmer* for 1851, page 176, alludes to an experiment producing forty tons six hundred weight; and again, in the volume for 1850, page 148, it is stated that Mr. NESBIT, in the Farmers' Club in London, alluded to a crop of his own, weighing 44 tons, and another crop of his neighbor, still larger. A book so common as *Johnston's Agricultural Chemistry* publishes, App., p. 46, a crop of small white turnips, the largest weighing only from 5 to 8 lbs., yielding 39 tons 15 cwt. This is equivalent to at least 50 tons of ruta baga. The same author, page 487, quotes from the second report of the Royal Agricultural Improvement Society of Ireland, page 57, a crop of turnips weighing 56 tons, and including tops, 76 tons. "An acre in our island," says the same author, "has been known to produce *sixty tons of turnips*, and perhaps that is not the maximum"!

"But," says the correspondent of the *Germantown Telegraph*, "I can not imagine how forty tons of turnips can possibly stand on an acre." This question is not one of *imagination*, but of arithmetic. The maximum weight of the ruta baga is twenty pounds each. The largest of mine weighed fourteen. My neighbors had some weighing twenty. J. MECHI, London, says: "Plenty of mine weighed seventeen pounds. Turnips are planted in rows two feet apart, and from eight to twelve inches in the rows; the most liberal allowance being *two feet* surface to each root. An acre is 43,560 feet, and of course will sustain 21,780 plants. Multiply this number by one-half the maximum weight of roots, that is ten pounds, and we have the weight of what ought to be a medium crop—217,800 pounds, or more than 100 tons. Surely, then, a crop of 40 tons is not incredible.

I wish to say to farmers who may notice this statement—

1. Our cattle always suffer more or less from the violent change from the green grass of summer to the dry hay of winter.

2. Roots are in their composition, like green grass, and may be kept all winter in their green state; and a portion of root feed is the most economical policy.

3. In this climate there is no *substitute* for roots for cattle.

4. They cost only from two to five cents per bushel.

5. A larger quantity of root food may be fed from a given quantity of land, than of any other kind.

6. The larger the yield per acre, the lower the cost per bushel.

The plowing should be deep, manuring high, and hoeing frequent and thorough. J. T. ANDREW.—*West Cornwall, Conn.*

It will be recollected that in the April number of the *Farmer* for 1852, we gave an abstract of Mr. ANDREW's method and success in cultivating ruta baga, saying that his results "gave encouraging evidence of the successful application of skill and science to

farm husbandry;" and knowing that it was very generally supposed that this climate was not so well adapted to the profitable culture of root crops as Great Britain, we hazzarded the following assertion: "We speak advisedly when we pronounce 41½ tons a greater crop than has ever been raised in Great Britain. 25 tons is there considered a first rate crop, and is seldom exceeded." We said this, not in the least to intimate a doubt that Mr. ANDREW'S crop was not 41½ tons per acre, but as practical proof that our climate and soil would produce better roots than England. When we made the above assertion, we were aware that there were many published accounts of 40, 50, 60, and even 70 tons of turnips per acre, reported by men of undoubted veracity. Upon investigating these statements, however, we generally found that the methods of admeasurement were of anything but an unexceptionable and satisfactory character. In some cases a few yards of a single row only had been weighed, and with the weight thus obtained as the basis of calculation, the acreage yield had been determined and published. Others would "stride off" an acre, and count the number of "cart loads," estimating the cart to contain a certain number of bushels, and the turnips to weigh so many pounds per bushel; and in this way calculate the weight per acre. Any one can see that it is easy in this way—especially if you think you have a large crop, and wish others to think so too—to make a crop yield 50 or 60 tons per acre.

Last fall, a friend of ours who had an excellent crop of potatoes, wished to ascertain the probable yield per acre. Accordingly he dug half a dozen hills, weighed the potatoes, and found to his delight that his crop would yield 1,275 bushels per acre. Even Prof. COMSTOCK'S terra cultured potatoes did not beat this. However, when the potatoes were all dug, the yield was found to have decreased to somewhere about 250 bushels per acre. So we believe would have been the case with these immense ruta baga crops, if correctly weighed. We do not say it is impossible to grow such crops; still, we believe 50 tons of turnips have never been grown on a single acre. We have had unusually favorable opportunities of seeing and judging the weight of the best turnip crops of England, and have accurately weighed some of the largest crops of SCURVIN'S ruta baga we ever saw, and never found one to exceed 27 tons per acre.

No one can set a higher value on root crops in agriculture than ourselves, and we would use every means in our power to extend their culture. Exaggerated accounts of large crops, however, we think rather calculated to retard ultimately the desired object than to hasten it; for a farmer who expects 50 or 60 tons per acre, will certainly be disappointed, and consider the whole affair a humbug.

WHY DOES THE SAP RISE IN TREES?—This interesting question is the caption of a long article to be found in the August number of 1852 of the *Working Farmer*. I have read many essays intended to elucidate this phenomenon, but the one referred to is the rarest specimen of scientific literature I have ever met with. The author begins by attributing to the whole family of vegetable physiologists a want of accurate knowledge of cause and effect, and of seeking shelter behind an unmeaning shadow, by them styled vital principle. After having thus modestly disposed of the common herd, he goes on and says: "We are willing to admit that some of the causes for the rising of sap in trees and other plants, may neither be known nor understood; but so many are known, and their operations have been so minutely considered, that we see no objection to attributing the whole phenomena to such natural laws as we are acquainted with, provided they seem to be sufficient to render the whole fact clearly understandable."

He proceeds and gives no less than eight propelling powers, to which he attributes the rising of the sap. I would always prefer to have one well authenticated reason, than so many, lest they all should fail. But let us see if any of the reasons assigned will bear examination. He does not single out any one of them, but attributes it to the joint operation of them all.

The first propelling power enumerated is *capillary attraction*. Capillary attraction exerts but a very feeble power when it is exerted in straight tubes, but water may be absorbed by porous bodies to a considerable elevation above its level. But such absorption never assumes the form of

a running stream; it only rises in sufficient quantity to wet the porous body. When the liquid evaporates, a new supply rises up. But this can only take place to a very limited height. If the rising of the sap depended on capillary attraction, it would always rise when the earth is moist; but such is not the case.

The second power enumerated is a still more feeble one. The author says that "if we immerse one end of a tube in water, and blow over the top of it, the water will rise in the tube." This can in no event have much influence on the sap; because at the time the sap is rising the fastest, the ends of the tubes in which it circulates are not exposed, being confined in the fruit and leaf buds. But it would be sufficient answer to this latter, to remind the reader that the sap rises in confined rooms, where no wind can blow.

The third is still more ridiculous. I will give you the words of the author: "A certain space of time is necessary to enable substances in contact to let go of each other; and even great force and rapidity of action will not overcome this tendency. If we draw a polished cone of glass upwards, its point having been previously inserted in water, at a speed of ninety miles per hour, we shall raise a column of water equal in size to the diameter of the cone at the point of immersion." I do not see the application of this phenomenon to the rising of the sap, but am quite sure that the learned professor has attributed it to the wrong cause. The reason why the water will follow a cone thus speedily removed, is simply because the water will rush after the cone to fill the vacuum caused by the removal at the rate of ninety miles per hour, and not to the attraction between the glass and the water.

The fourth is the evaporation of liquids on the leaf causing cold, and a consequent condensation of the gases to be found near at hand in the capillary tubes. There are several objections to this having any effect; the most potent would be the fact of no leaves being out at the time the sap commences to run. Another is, that instead of drawing the sap up it would be more easy to draw air down.

The fifth is *centrifugal force.* The writer here describes the motion necessary to produce this phenomenon, and says that "a cornstalk may be placed one end in a basin of water, and the other end moved so rapidly as to cause the water to be ejected at the other." The neighborhood of the author must present a scene of animated nature not to be found everywhere. This supernatural motion must have been obtained by the use of the improved superphosphate. How interesting it must be to see the trees and the cornstalks performing these gyrations to pump up their sap. BARNUM should buy the place, and have it walled in and whitewashed, and put it on exhibition. It would be a fine field for the pasture of the woolly horse.

The sixth is *endosmose.* The application of this phenomenon, as laid down by the author, is beyond my limited comprehension, and I refer the reader to the original.

The seventh is that *water will find its level.* This I do not deny; but the sap in a tree is going out of its level; and if it were not, there would be no need of speculation on the subject.

The eighth is more likely to deceive those who do not think deeply before they adopt any conclusions. The author says that "portions of gases find their way into the capillary tubes of the tree, and being lighter than the sap, cause the sap to rise." This is quite erroneous; no such thing will take place. If a bent tube is filled with a liquid, it will rise as high in the one arm as in the other; and if we cause a gas to find its way into one of the arms, the water will rise in that arm until the column will weigh just as much as the column in the arm that has no gas in it, but no higher. If the tube be capillary and open at both ends, the liquid will not rise, but in time will descend, and the gas will be found on the top. The gas in the tubes of a tree would have no propelling force under it, and could not rise without forming a vacuum between itself and the water below; hence it would only rise as the water and itself slowly changed places.

The author concludes that he has proved the foregoing to be the causes of the rising of the sap, by an experiment. He cut off a grape vine in the spring, and tied an India rubber bottle over the end of it. He says that notwithstanding the bottle was capable of bearing twenty pounds of pressure, it burst by the force of the flow of sap.

I do not wonder that the other gentlemen have never thought fit to attribute the rise of the sap to any of the causes set out by the author, and to him be the honor of the discovery.

Not one of the phenomena above mentioned has a shadow of claim to be considered as the motive power of the sap. The whole essay is but a tissue of undigested matter, calculated only to fill up the pages of a journal principally devoted to the puffing of a nostrum. Before attempting to assign

a cause to an effect, we should well consider the effect. The sap rises in the spring, before the leaves are out; consequently they are not needed to draw it up. Capillary attraction fails; because the sap does not rise at all times when the earth is wet. The sap is not drawn up; because it will overflow, and it will continue to run if the tree is cut off at the ground. It is not pushed up; because if we cut a tree just above the ground, when the sap is running up, and immerse the trunk in colored water, it will rise and color the texture of the wood.

When we have discovered the principle that gives motion to the heart of man, then we will be able to answer the question, but I doubt if before.

The conclusion of the article is the only part of it to which I can subscribe: "With such facts before us so simple, and so readily to be understood, we are disinclined to attribute the whole action of, to the words vital principle." I have no difficulty in believing that the author is so simple, and easily understood, that he has attributed the rising of the sap to any power but the vital principle. B.

Improvement of Roads.—Nothing adds more to the beauty of a landscape or rural scenery, and nothing is a surer indication of the enterprise and prosperity of its inhabitants, than to see handsome, straight, and well constructed roads, well fenced with boards, hedge, or wire, and skirted with ornamental or useful trees.

Many persons pursue a very slovenly practice of throwing along the road-side stones, old stumps, or orchard brush, which they take from their fields, thus obstructing the way so that two teams can barely pass, and the pedestrian who is compelled by necessity to use the only means of locomotion which nature has provided, or the individual who chooses to avail himself of the healthful and invigorating exercise of walking a few miles, is obliged in many instances to plod through the mud up to his ancles or betake himself to the neighboring fields.

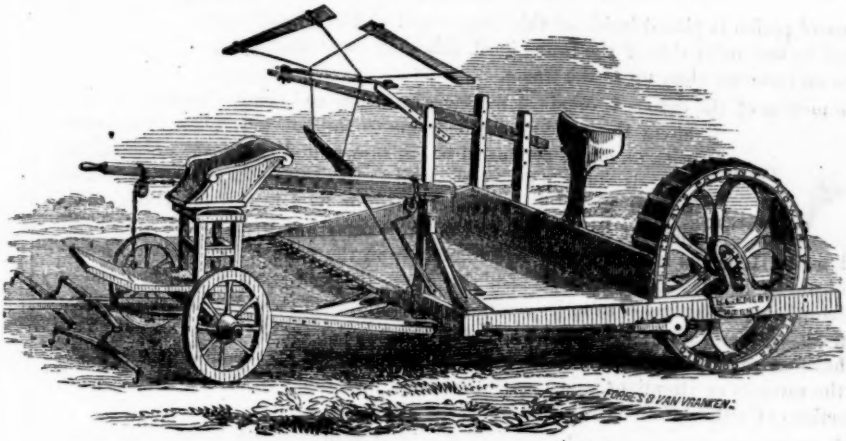
Another great source of annoyance is the practice of letting their long-snouted quadrupeds run at large, without rings in their noses, who root up the ground along the fences, leaving them rough and unsightly, and causing Canada thistles and other noxious weeds to spring up in place of the beautiful grass-sward which has been upturned by those voracious grunters.

I would here remark that I have entirely eradicated several patches of Canada thistles along the road-side, by cutting off every plant even with the surface of the ground as often as they made their appearance, as I passed to and from my daily avocation.

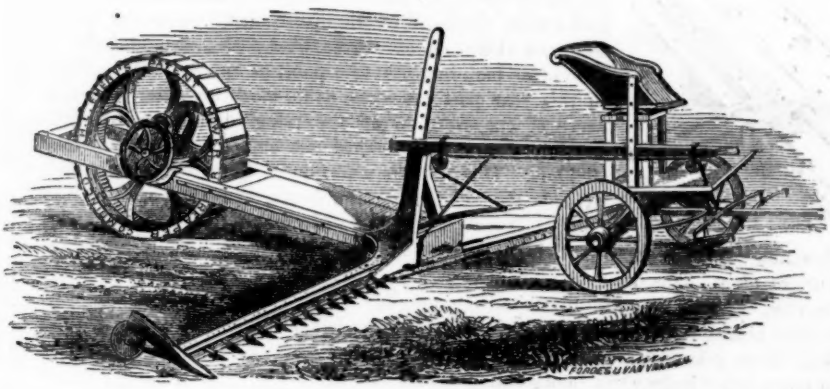
An error is committed by many of our path-masters in working the roads too wide, which necessarily renders them flat, thus causing the water to stand on the surface, when the tread of animals and the wheels of carriages soon make them very muddy. They plow close up to the fences on each side, leaving no chance for a foot passenger to get along. A good side-walk should be left on each side, at least six feet wide. The width of the road from the deepest part of the ditches may be 32 feet, and the two side-walks six feet each; making in all 44 feet clear of the fences, or about two and a half rods, which is enough for any road except some great thoroughfare. Trees may be planted along the road-side, especially on the south side of an east and west road, as their shadows will be cast into the road, and will do little or no injury to the growing crops. The trees may be cut away as soon as they attain a size sufficiently large for fence posts, and their places supplied by setting out new ones in the intermediate spaces, or by letting a shoot grow up from the old stump to form a new tree. New trees may be set in the spaces some years before cutting the old ones. In this way the farmer can furnish himself with considerable timber and fuel with little expense, beside adding beauty to his farm and the surrounding scenery. If all the road work were faithfully and judiciously laid out, we should soon see a decided improvement in our roads; and especially as the practice of building plankroads has become so common, which throws more labor on the cross roads.

I would again call the attention of your readers to the law which requires the path-master in each road district, the superintendents of canals, and the corporations of railroads, turnpikes, and plankroads, to cause Canada thistles and other noxious weeds to be cut at least twice a year—once between the 15th of June and the 1st of July, and once between the 15th of August and the 1st of September in each year. Jason Smith.—*Tyre, N. Y.*

EMERY'S MOWER AND REAPER, COMBINED.



EMERY'S MOWER AND REAPER.



VIEW OF THE MACHINE AS ARRANGED FOR MOWING.

As will readily be seen, it is provided with a driver's seat and wheels, independent of the machine itself, but attached by hinges in such a manner as to allow an easy action and adjustment, while this method does away entirely with all the side draft.

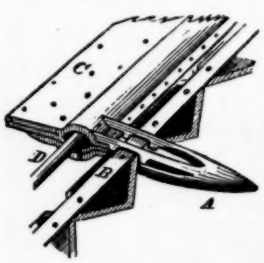
The machine itself is provided with a large main wheel, being about forty inches in diameter and eight inches face, with the necessary projections on its surface. This wheel is cast with an internal gearing at one side of the spokes, the teeth of which are protected from dirt and strengthened by a deep flange of nearly three inches. This flange is represented by that part of the cut bearing the words "*Mower and Reaper, Combined.*" The main frame is suspended from this wheel, by means of adjustable pinion boxes, the boxes being hung inside of hangers attached to the frame itself. By applying a kind of wrench to the box, (which projects far enough beyond the hangers, and is made square,) it may be turned; thus by the action of its teeth on the corresponding teeth of the hanger, the frame itself is raised or lowered to any desired point, where it is confined by a simple iron key.

A small pinion is placed inside of this large wheel at the forward part, and its shaft confined to the under side of the frame itself, this shaft extending far enough outside to receive an eccentric close up to the frame.

The motion of the cutters is obtained by eccentric straps and connecting rod, passing along the outside of the frame to the fore end, where it connects with an elbow or knee iron, as shown at A, in fig. 1. This elbow extends its other end through to the front of the main frame, as seen at B, and is confined in position by a heavy, substantial bed-plate of iron. The end of the cutter bar itself, connecting with the elbow at B, has its motion simply and directly from the main wheel, all parts working constantly in line, giving a stroke of eight inches by the eccentric, and each end of the elbow being eight inches from its centre of motion, causes on either end a deflection of but five-eights of an inch beyond a straight center line. At the same time, the cutters have as much velocity as the best reapers and mowers in use. They make but half the reverses or vibrations, and require less than half the weight of cutter bar and connections of either of them, while it is equally strong.

Fig. 1.

This cut represents a transverse section of the wrought-iron cutter beam, with a section of the cutter bar, cutters, and dividers. B represents the cutter bar, to which the steel blades are attached on its under side, the bevel of the blades being upon the upper side and sickle edge. These blades also extend back to the cutter bar, but not to a point as forward. The edges of this rear part are same as forward the cutter bar, and serve to cut and clear all the "clog" or fibre which may possibly escape the forward cut and get drawn into the dividers. D represents a section of the crank axle, which extends through the hollow beam, and supports its outer end. C represents the double plate hollow beam, with attachments. A represents the divider, showing the openings and guides through which the cutters pass. This divider is made very true, with sharp corners, over which the cutters pass, forming a perfect shears-cutting action. These dividers are wider than on most other machines, thus protecting the cutters from being injured by stones getting between them, (the space being but two inches,) and compressing the grass or grain into a more dense body while being cut.



These cutters and dividers are not dissimilar to those used by the first premium mowing machine at the late trial by the State Society, with the exception that the divider is made to fit round the under side of the wrought iron cutter beam, the beam itself being made of two plates of wrought iron rolled into a sort of trough with their concave faces placed together, and then firmly riveted, thus forming a hollow beam. An enlarged but imperfect representation of the divider is shown in fig. 3.

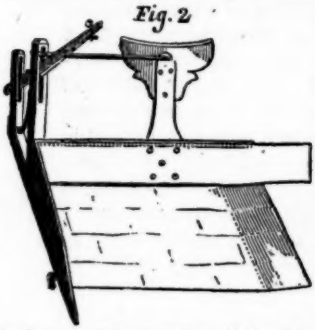
Fig. 3.

Through this hollow beam a shaft is passed, and at its extreme end this shaft is turned at right angles to the rear of the beam about two feet, and a wheel attached to its rear end, to support the outer end of the beam. At the inner end of this shaft is attached a sort of crank or lever about two feet long, extending forward towards the driver's seat, with a leather strap or chain attached to it. This strap, passing upwards and over a shieve, extends along the large lever to the driver's seat, and passing anoth[illegible]shieve, and is then attached to the foot board of the driver. This main lever, which i[illegible]n passing the driver's seat, is made permanent to the machine itself, and is kept in its desired position or elevation, by means of an upright post beside the seat, with a series of

catches and latch, operated by the driver's foot, so that while the person is raising the lever with his hand, with his foot he loosens or confines it where he desires.

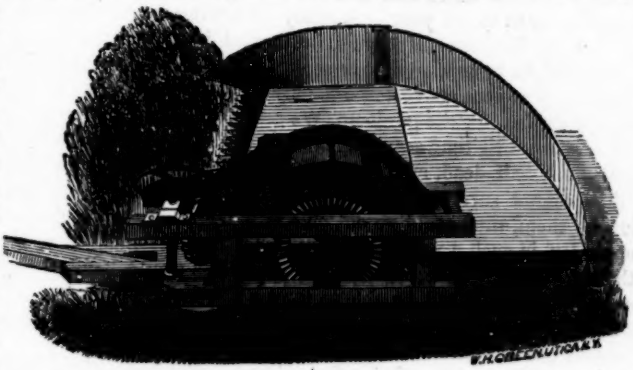
Therefore, while he raises the lever, lifting by it the side of the machine directly in rear of himself the strap or chain is drawn over the shieves, and the end of the wrench lever is raised sufficiently to turn the crank shaft which extends through the cutter beam, and by this being turned, the wheel at the outer end becoming a fulcrum on the ground, the beam itself must be raised at its outer end so as to maintain a uniform elevation of its whole cutting front from the ground.

Fig. 2



The apron itself is shown with its fixtures in fig. 2. detached. It is made of a strong frame work and light covering of wood and tin. The T standard at its back is a breast-work to protect and support the raker, who stands erect, face forward, directly behind it. The delivery is at one side, and has a slight ele-elevation above the cutters, about one and a half inches, and is over four feet wide. A reel may be used at pleasure, and is always sold with the machine. The reel is driven by a pulley on the main wheel shaft—the band passing below the apron to the front side, where it passes upward to and over a pulley on the reel shaft. The band and pulley have been omitted by the engraver, although in his sketch made from the machine.

BURRALL'S CONVERTIBLE REAPER.—The accompanying engraving represents *Burrall's Reaper*, which received the first prize of $50 at the Trial of Implements at Geneva, last summer. The judges, in their report, say: "T. D. BURRALL'S Machine performed its work in the most admirable manner; the gavels were well laid; the workmanship and materials were excellent. The circular apron for side delivery, the balance wheel, and an arrangement to elevate the exterior edge of the apron, are valuable features."



In our advertising columns will be found a description of *Ketchum's Mowing Machine*, by HOWARD & Co., Buffalo. Of this machine we can say it is the best Mower we know of, and well worthy the attention of those who have a large quantity of grass to cut. We have recommended this machine both in our journal and in answers to inquiries by letter, and have received several communications from farmers who purchased on our recommendation, warmly thanking us for the service we had thus rendered them.

The subject of mowing and reaping machines is now creating considerable attention, and we desire to give our readers the best information we can get on the subject. Many who have written us expecting to receive answers by letter, will find their inquiries answered in this and other articles treating of the subjects on which they desire information.

Horticultural Department.

CONDUCTED BY P. BARRY.

THE KITCHEN GARDEN we must recommend to the special attention of our readers, and we wish to do it now in season, that ample and timely preparations be made for a thorough season's culture. We know of no good reason why the farmer with his barn-yards overflowing with manure, with abundance of land, and with ample requisites of every kind, should content himself with a scanty supply of poorly grown esculents, commencing not earlier than midsummer. If a hard-working mechanic or merchant in town, who has to labor at his profession some ten or twelve hours a day, can by means of a little hot-bed enjoy his dish of radishes and salads in April and May, why cannot the farmer? At this season of the year, men are not very busily employed, and even if they be, this matter of providing a supply of vegetables is as important as anything else. Is your health and comfort of no account? What are you working for? You will say you cannot afford the time; it will not pay, &c., &c., to produce such luxuries as forced spring vegetables. If your system of living were such as it ought to be, you would consider these articles we speak of *necessities*. Asparagus and rhubarb and sea kale you might force, and your tables might groan under the delicious vegetables that city people prize so highly and pay for so dearly. Young men who are perhaps attending school, or spending a considerable share of their time in frivolous amusements, should take up this matter; it will fill up the spare hours and afford them much instruction, aside from the comfort and gratification. Any man, or any boy sixteen years of age, who has the slightest mechanical faculty, can construct a hot-bed frame. In previous volumes of the *Farmer* we have given some hints on this point, as well as in the preparation of the manure and general management. Refer to these, and go to work immediately, so as to get your beds ready for sowing as soon as the first or second week in March at the furthest. It should be located in a sheltered place, and some coarse straw mats might be made to cover at nights and during very cold intervals.

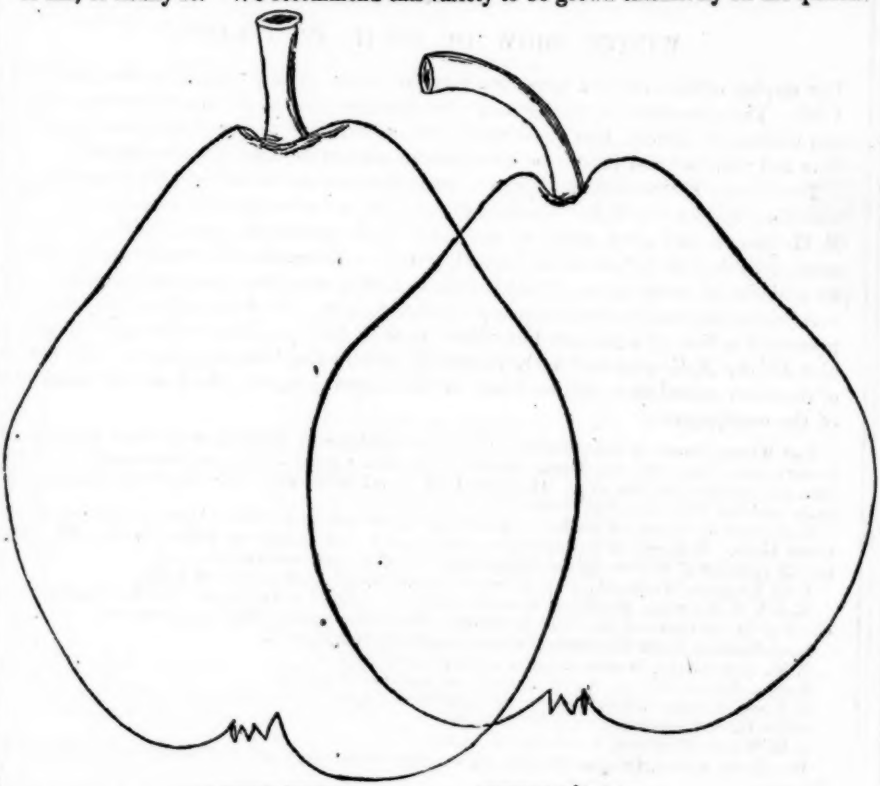
A hot-bed is a great convenience if only to grow plants, such as cabbage, cauliflower, tomato, celery, &c., for the garden. We see every spring, along in the month of May, farmers wasting their time searching around the city for such plants, and when they get them they are half dead, and unless the weather subsequent to planting be very favorable, they cannot survive. If they had them at home, they would lose no time in looking for them, they could go out on a damp morning or evening, and transfer them to the garden in such a way as to give them no check, and thus they might gain a month with the crop. Besides all this, the ladies would have an opportunity to bring forward their annuals, and be able to have a fine display of flowers all summer; while depending solely on out door or open ground culture, much of the season is over before the annuals get in blossom.

Pruning of all sorts may be performed now. For instructions in this work we must refer to previous volumes, in which we have treated it fully. Scrape and clean the bark of old rough trees; destroy eggs of insects; apply manure and composts around exhausted bearing trees where it was neglected last autumn; prepare scions for grafting, and prepare only the very best sorts. The pages of the *Farmer* throw a good deal of light on this subject. Pea sticks may be prepared, and all implements collected and put in perfect working order.

The winter, over the whole country, has been unusually mild—a fair offset to last winter. The prospect for a fruit crop is now good; but there has yet to come the most critical time, so we must not be too sanguine.

BEURRE DIEL AND BEURRE D'ANJOU PEARS.

We subjoin outlines of two of the largest and finest autumn pears of the four or five hundred varieties now under cultivation in this country. The *Beurre Diel* was among the earlier varieties originated by Van Mons, some forty or fifty years ago. It has been a popular variety in this country among pear growers for several years, and is considerably disseminated; but it was not until within a few years that it was extensively propagated, and took its place among first rate varieties. The reason of this was, that on pear stocks it was frequently somewhat astringent; but since it has borne on quince stocks, its quality has been almost uniformly fine. It is a rampant grower both on pear and quince, making long, stout, and somewhat curved shoots. It bears young and abundantly, and the fruit may be kept into and even through the whole month of December. We believe our friend H. P. Norton, Esq., of Brockport, who has some fine trees of this sort, had them in good condition till about the 1st of January last, if not later. To have them keep so long, they must be left on the trees till they are ready to fall, or nearly so. We recommend this variety to be grown exclusively on the quince.



BEURRE DIEL. BEURRE D'ANJOU.

Abroad the *Buerre Diel* is known variously as *Buerre Royal, Buerre Magnifique, Buerre Incomparable*, &c. Mr. Hovey designates it as "*a noble fruit in every sense of the word*," and so it is.

The *Beurre d'Anjou* is of comparatively recent introduction. We have invariably

received it from France as "*Ne plus meuris.*" The variety cultivated under the latter name in England is a very late-keeping winter variety. The *d'Anjou* is, we believe, the finest autumn variety imported or introduced within the past twenty years. It was first fruited by Col. WILDER, some seven years ago, and ever since it has been gaining ground in the estimation of the Boston cultivators, until now they cannot use language too strong for its praise. We have fruited it three years at Rochester, and can say that it is a pear of surpassing excellence. The tree is very vigorous, erect and handsome in its growth, with large, luxuriant, wavy folded leaves, on long petioles, giving the tree a distinct aspect among others. It bears young and moderately; the fruit on the ends of the branches generally, and very regularly distributed. Fruit—large, long, obovate, with a short, stout stalk. Skin—fair, smooth, marked with russet dots, and usually having a rich, ruddy cheek when exposed to the sun. The flesh is finer, and flavor richer and more highly perfumed than the *B. Diel*, but the latter would be more profitable for extensive culture. Season about the same as *B. Diel*—from October to Jan.

These are two varieties of which we think no one need be afraid to plant too many. Five hundred bearing trees of each would be a snug fortune.

WINTER SHOW OF FRUIT AT ALBANY.

THE display of fruit was not large, but very fine—the greater part from Western New York. The committee of arrangements for this department, Messrs. MCINTYRE, DORR, and GOOLD, of Albany, had made ample and comfortable preparations both for exhibitors and visitors; and those who were present seemed to enjoy the occasion well.

The Messrs. HAYWARDS, of Brighton, made their usually superb display of apples (26 varieties,) besides two dishes of grapes in first rate order in appearance and flavor. Mr. R. H. BROWN, of Greece, made a fine display of 20 varieties of apples—extra fine specimens, eclipsing all the others in size and beauty. Messrs. ELLWANGER & BARRY offered 40 varieties of pears, many of which were in tasting condition, and gave occasion for a very interesting and instructive gossip on winter pears. Mr. JOHN S. GOOLD, of Albany, presented a dish of *Inconnue Van Mons* pear in nice condition—pronounced good; also *Winter Nelis* pear and finely preserved *Isabella* and *Catawba* grapes. The names of the other contributors will be found in the following report, which we take from one of the newspapers:

THE WINTER SHOW OF THE SOCIETY.—There was exhibited at the Hall of the State Agricultural Society, yesterday, says the Albany *Register*, the most extensive and greatest variety of winter fruit ever collected in this city. The great bulk on exhibition came from the western part of the State, and but little from this section.

ELLWANGER & BARRY, of Rochester, had the greatest variety of Winter Pears, numbering 40 different kinds. It is said to be the greatest variety ever exhibited in the United States. They also had 38 varieties of Winter Apples, embracing some of the choicest fruits.

T. G. YEOMANS, Walworth, Wayne County, 6 varieties of Apples and 2 of Pears.

N. & E. S. HAYWARD, Brighton, Monroe County, 26 varieties of Apples and 2 of Isabella Grapes—one kept in saw-dust and the other in cotton. The former appeared the best preserved.

ISAAC MERRITT, Penfield, Monroe County, 3 varieties of Apples.

F. W. LAY, Greece, Monroe County, 11 varieties of Apples.

ROBERT BROWN, Greece, Monroe County, 20 varieties of Apples.

A. FROST, Genesee Valley Nursery, 24 varieties of Apples.

Judge BUEL, Rochester, 5 varieties of Apples.

J. H. WATTS, Rochester, 5 varieties of Apples.

WM. HART, Albion, Orleans County, yellow Corn in the ear, yielding 60 to 80 bushels shelled to the acre.

The Society did not offer any valuable premiums for Fruit; but the committee were of the opinion that the Executive Committee might be induced to give a few to those who have shown so much zeal in getting together the greatest variety and choicest kinds of Winter Fruit.

The following premiums were awarded:

FRUITS.—*Pears*—ELLWANGER & BARRY, large Silver Medal.

Apples.—Ellwanger & Barry, Diploma, copy of Downing's Fruits; T. G. Yeomans, copy Barry's Fruit Garden; J. H. Watts, Rochester, copy Thomas on Fruit; A. Frost, Rochester, copy Downing's Fruits; John S. Goold, Albany, copy Barry's Fruit Garden; E. S. Hayward, Brighton, Monroe Co., Diploma and Downing's; Isaac Merritt, Penfield, copy Thomas; F. W. Lay, Greece, copy Downing; Robert Brown, Greece, Diploma and Downing; J. J. Thomas, Macedon, Wayne Co., Diploma and Barry's Fruit.

Grapes.—N. C. Hayward, Greece, copy Barry's Fruit Garden.

Carrots.—N. & E. S. Hayward, Brighton, Monroe Co., 600 bushels on 55-100 acres, $8.

Clover Seed.—Frederick N. Tobey, East Bloomfield, 30 22-60 bushels on 6 acres and 100 rods, $5.

Field Crops.—*Winter Wheat*—Ira Apthorp, Riga, 53 9-60 bushels per acre, $20.

We hope the Society will hereafter encourage these winter exhibitions, as the late one has afforded a very satisfactory demonstration of their utility.

Annual Meeting of the Genesee Valley Horticultural Society.—This meeting was held on the 5th February. The following officers were chosen for the ensuing year:

President.—J. J. THOMAS, Macedon.

Vice Presidents.—L. Wetherell, Rochester; H. P. Norton, Brockport; R. G. Pardee, Geneva; Mr. Jeffry, Canandaigua; Samuel Shadbolt, Wheatland.

Recording Secretary.—Jas. Vick, Jr., Rochester.

Corresponding Secretary.—H E. Hooker, Rochester.

Treasurer.—James H. Watts, Rochester.

Committees.—*On Fruits*—P. Barry, H. E. Hooker, John Donellan, J. W. Seward, E. S. Hayward, L. A. Ward, J. W. Bissell, H. N. Langworthy, L. B. Langworthy, Zera Burr, Geo. Ellwanger, Alonzo Frost.

On Trees and Shrubs.—W. A. Reynolds, Wm. Webster, R. Donellan, W. King, Joseph Frost, C. F. Van Doorn.

On Entomology.—L. Wetherell, J. W. Seward.

On Vegetables.—John Donellan, James Vick, Jr., Horace Hooker, James Buchan.

On Botany.—L. Wetherell, Francis Trentman, Moses Long, Chester Dewey, G. H. Smith, P. Cooney.

On Finance.—John J. Thomas, L. Wetherell, J. Vick, Jr., J. H. Watts.

Executive Committee.—J. J. Thomas, L. Wetherell, P. Barry, W. A. Reynolds.

There was a very nice display of winter apples and pears, and some of the best preserved *Isabella* grapes we have seen were presented by Mrs. M. Jewell, of Rochester. Among the apples we saw none so remarkable as *Newtown Pippins*, the largest and fairest we have seen shown, by Mr. R. H. Brown, of Greece. The Committee report as follows:

Report of Fruit Committee—Winter Exhibition.—Messrs. Ellwanger & Barry, Mt. Hope Nurseries, exhibited 33 varieties of Pears and 24 of Apples.

Jas. H. Watts, Rochester, *Northern Spy* Apples.

R. H. Brown, Greece, 22 varieties Apples.

Messrs. A. Frost & Co,, Genesee Valley Nurseries, 18 varieties Apples.

H. White, Rochester, 8 varieties of Apples.

S. Miller, Rochester, *St. Jermain* Pears.

Mrs. M. Jewell, Rochester, *Isabella* Grapes in a most beautiful state of preservation.

Messrs. Bissell & Hooker presented a new and promising variety of Apple—name unknown to the Committee.

Pears and Prices.—We learn from the best authority, that sales of pears have been actually made at Philadelphia this season at prices calculated to give an impetus to their culture beyond any former example. One remarkable specimen of *Duchess d' Angouleme* pear was sold at Isaac Newton's Fruit and Ice Cream store, in Chestunt street, Philadelphia, for *One Dollar!* and *many* specimens not quite so large, but very respectable in size, produced seventy-five cents *each* as soon as they were displayed in the window. Now this is very encouraging, certainly, to a man who can purchase a tree for from twenty-five to fifty cents, and sell the produce at even half or quarter the above prices. In addition, we are assured that Mr. Newton was selling a stock of *Vicar of Winkfield* pears, on December 2, 1852, at seventy-five cents a dozen, to eager buyers! Our correspondent says he immediately sat down and ordered pear trees for all the vacant spots he could find in his garden. We only add that we think him a sensible man.

Editor's Table.

THE AGRICULTURAL PRESS.—We know of nothing more encouraging in the signs of the times than the great demand for all kinds of literature that in any way appertains to rural affairs, or professes to instruct in agriculture and kindred pursuits. Demand always creates a supply—so, at least, is the case in this instance. We have now on our exchange list something like sixty agricultural papers, probably more than are publishd in all the other countries of the world put together. We feel grateful that our lot is cast amid such a reading, thinking nation of working farmers. To notice separately, as they deserve, such a host of contemporaries, would fill completely our humble sheet.

Boston, "the Athens of America," pours forth weekly four clear, vivifying streams of agricultural knowledge, running east, west, north and south, enlightening the mind and fertilizing the soil of thousands of happy readers. The *Boston Cultivator*, we believe has much the largest circulation of any weekly agricultural paper in the world. Its leading articles are sound, seasonable, scientific and practical. The *New England Farmer*, *Massachusetts Ploughman*, and *New England Cultivator*, are also good papers.

From New York, we get, weekly, *The Agriculturist*, *American Artisan*, and *Scientific American*; monthly, *The Plough, the Loom, and the Anvil*, and *Working Farmer*.

Baltimore furnishes us one of our best monthly exchanges, *The American Farmer*.

Pennsylvania sends us two monthlies. *The Agriculturist* has just hailed us, from Mercer. It is an unpretending sheet, and will doubtless improve if well sustained. *The Pennsylvania Farm Journal* has recently changed its location from Lancaster to West Chester. We consider it "A, No. 1."

Cleveland, Ohio, has the honor of issuing a first rate weekly agricultural paper, *The Ohio Farmer*. The semi-monthly visits of the *Ohio Cultivator*, from Columbus, generally afford us both profit and pleasure.

Michigan has now two monthly papers to look after her agricultural interests, both hailing from Detroit. "Competition is the spirit of trade." The new paper, *The Farmer's Companion*, appears to have waked up the old, slovenly *Michigan Farmer*, till it is now really quite a decent, respectable *looking* Journal. Its youthful rival bids fair to be one of our first class agricultural papers.

The Prairie Farmer, Chicago, comes out in a new dress and is much improved in appearance. J. A. WRIGHT has again taken its editorial charge, assisted by Dr. J. A KENNICOTT in the Horticultural department. The *Farmer* now ranks among the best.

The *Wisconsin and Iowa Farmer* is a valuable western journal. Published monthly at Janesville, Wisconsin.

The Western Plow Boy, Fort Wayne, Indiana, is a semi-monthly just commenced. Its appearance is much in its favor. We wish it a long career of usefulness. It showed good sense in copying our article on "the improvement of our common sheep;" it *forgot*, however, to give credit. We do not blame the "*Boy*"; this kind of stealing is so common among the "old folks," that he doubtless thought it no harm to follow their example.

We have not space to go farther west or south or our list might be greatly enlarged.

Coming home again, we have the *Wool Grower and Stock Register*, formerly published at Buffalo, now removed to Rochester, N. Y., and published by D. D. T. MOORE, the indefatigable publisher of the *Rural New Yorker*, one of the best weekly agricultural and family papers extant.

The weekly *New York Farmer*, Rome, N. Y., is a useful paper.

The Northern Farmer, Utica, N. Y., monthly, is great on bees and chickens, and is down on agricultural science and other *kindred* "humbugs."

The Country Gentleman, Albany, N. Y., is a new weekly, conducted with much spirit and talent.

We have not alluded to half the agricultural journals on our list, but we think the above will be sufficient to show our Trans-Atlantic friends and subscribers that we are *some* in agricultural literature in this new world.

THE MICHIGAN FARMER.—The editor of the *Michigan Farmer* has a bad habit of telling fibs about his neighbors. We had hoped that a voyage to Europe and a good fit of sea-sickness would have cured him of this evil propensity; but it seems we are disappointed, as he returns "like a dog to his vomit." We were rather

fearful, when we read his *notes* from England, that this would be the result, as we know that such scenes and such characters as he describes are only to be found in the *very worst society*. Removed from the restraining influence of society at home, we fear our western editor was so unfortunate as to get into bad company, and thus our hopes of his improvement were blasted. One of our female subscribers in Michigan, calls our attention to the following paragraph in the February number:

"There are probably now about eight thousand subscribers to agricultural papers in Michigan, viz., six thousand to the *Michigan Farmer*, say one thousand to the *Genesee Farmer*, five hundred to the *Albany Cultivator*, and five hundred to all others. When we took the *Michigan Farmer*, five years ago, it had about a thousand *fifty-cent* subscribers, having been published six years previously, and the *Genesee Farmer* twenty-five hundred."

Now, the truth is, five years since we had but 705 subscribers in Michigan; last year, 2,409. The present year we can not say what the number will be, as we are every day receiving orders from that State, but have every reason to believe it will be much higher, having already entered on our books forty new offices, with good clubs, where the *Genesee Farmer* was never before taken. We hope the editor will make a *good Michigan Farmer*, and we shall ever rejoice at his prosperity.

ADVERTISEMENTS, to secure insertion in the *Farmer*, must be received as early as the 10th of the previous month, and be of such a character as to be of interest to farmers. We publish no other. Terms—$2.00 for every hundred words, each insertion, *paid in advance*.

Inquiries and Answers.

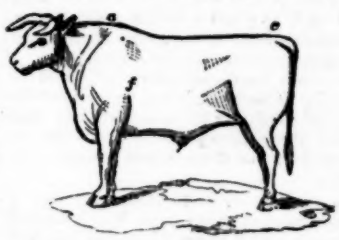
(EDWARD R. COKE.) MIDDLESEX HOGS.—There are but few Middlesex hogs in the country. We believe Mr. JOHN C. JACKSON, Newtown, Long Island, has imported some fine specimens of this valuable breed; and that Col. J. M. SHERWOOD, Auburn, N. Y., and LEWIS F. ALLEN, Black Rock, N. Y., have obtained some of them from Mr. JACKSON.

(J. W, WARD, Louisvile, Ky.) Guano is a most excellent manure for Indian corn; that is, it will very much increase its growth. The economy of using it, however, depends on the amount of increase produced by its application, and on the value of the corn. On good average wheat soils, or such that will produce from 15 to 20 bushels of wheat without the aid of manure, 100 lbs. of good Peruvian guano will produce three extra bushels of wheat. On very poor soils, we should expect a much greater increase; for in the former case, the increase is dependent on the ammonia of the guano: while in the latter, much benefit is also derived from the phosphates. On corn, the exact increase caused by 100 lbs. of guano, has not, to our knowledge, been determined. Our own opinion is, that it will not pay to apply guano to corn, when shelled corn sells for only 50 cents a bushel. We intend experimenting with it this spring and shall then be able to speak with more confidence. Any of our readers who have used it, will confer a favor by communicating the result.

ADMEASUREMENT OF ANIMALS.—Will not you, or some of your correspondents, give the readers of the *Farmer* a table, or rule of measurement, by which individuals may ascertain the weight, and consequently the value of their different animals, without having to depend upon the "say so" of the butcher. J. WORK, JR.—*Meadville.*

We believe there is no rule for determining the weight of beef by measuring the live animal, that even approximates to correctness *in all cases*. We have not sufficient data from which to deduce even a general rule, and we should be glad if any of our readers who have had experience in the matter, would give us their results and conclusions. The following, from *Stephens' Book of the Farm*, is to the point:

"Assistance may be afforded you in ascertaining the weight of your cattle until you are better taught by experience, and this consists in *measuring their bulk, or in weighing their live-weight*. The live-weight of cattle is easily ascertained by placing the animals upon a steel-yard. The rule to determine the quantity of beef by the live-weight, is to multiply the gross weight by .605 of a decimal, if the ox is ripe fat; but if not so, by .5 of a decimal: that is to say, that the offal of an ox in ordinary condition weighs about as much as its beef and bones. An ox should not be weighed immediately after it has fed, as it will weigh too heavy, but after it has chewed the cud, and is ready again to feed. Ascertaining the weight by measurement is a more convenient method than by weighing; and when the measurement is properly taken, and the ox of an ordinary size, it is about as accurate; though every person can not measure an ox, that process requiring judgment to do it properly and accurately. Suppos the annexeed figure to represent an ox whose weigth, sinking offal, is desired to



be ascertained by measurement. The mode is, measure with a tape-line from the top of the shoulder *a* to the tail-head *c*, and mark this for *length*; then measure round the body at *f*, immediately behind the shoulder, and mark this for the *girth*; and on consulting the tables calculated for the purpose of affording the results, the weight of beef will be found. Upon what principle this rule for measurement is founded I can not say, and suspect that it is entirely empirical. The rules by which the tables are calculated seem to be these two, namely: multiply the *square* of the *girth* in *inches* by the *length* in *inches*, and divide the product by 7344, and the quotient is the weight in imperial stones [14 lbs.] Or, square the girth in *feet* and multiply it by the length in *feet*, and multiply again by the decimal .238, and the sum is the weight in imperial stones. For Example: Suppose the girth is 7 feet, or 84 inches, and the length 5 feet, or 60 inches; the weight of beef in imperial stones, according to Strachan's Tables, which are the most recent, is 57 sts. 10 lbs. by the former rule, and by the latter it is 56 sts. 4 lbs. These results show that there is no fixed principle upon which either rule is founded.

"This seems a very simple process, and so it would always be, were the form of the ox always perfect, which is very seldom the case, the fore and hind-quarters, instead of being equal, being more frequently otherwise; and were the condition always the same. Therefore, the judgment is called into exercise to make allowance for those differences. When the fore-quarter seems the heavier of the two, the line should be stretched nearer the head than *a*, the exact top of the shoulder; and so in like manner, when the hind-quarter seems heavier than the fore, the line should be stretched beyond *c*. In regard to the girth, it is no uncommon fault in an ox to have the carcass gripped small behind the shoulder, so that the exact girth of such a shoulder would be below the truth. It is very rare to find the girth too much filled out. You thus see that judgment is required to apply the tape-line to an ox; and as an illustration of the practical effects of misapplying the tape-line, I may state that one inch only added to the girth and length given in the above example, makes a difference in the above weight of upwards of 2 sts. The addition of one inch in the length is a mistake which may easily be made by the ox merely standing with his head down and back up; and a similar position may as easily cause an error in the girth. Experience alone can make you proficient in measuring. I knew a steward in Berwickshire who had so much practice in measuring and so frequent opportunities of verifying his measurements, that he measured any ordinary sized ox, whether fat or half lean, from one stone to half a stone of its true weight.

"To an ox from 40 to 70 stones the rule of measurement applies pretty near, if it is applied with judgment, and it is but fair to the principle that it should be so applied; but in weights both below and above these figures the rule is usually at fault."

TURNIPS.—I am rather a green farmer at best, and want to know many things which most men, I presume, are well informed about. I wish to know more about the turnip crop and its relation to wheat growing. I have thought some on the subject, read all I could get, and *experimented* a little, but still I find I have advanced but little in that practical knowledge I need. I had thought of preparing a small piece of ground, and early, say first of May, sowing it to turnips, and then turn them under. Now will you please give me your opinion on this course. If it is all moonshine say so, and tell me how *you* would manage. WM. P. CUSHMAN.—*Richfield, Ohio.*

We like the ideas contained in this letter. When we see farmers wishing to understand the position one crop bears to another in a system of rotation, we feel encouraged to hope a brighter day is dawning on our national agriculture. The position of the turnip crop, in agriculture, is a subject too extended and too important to be investigated in this place, and we shall recur to the matter elsewhere in the course of this volume.

Turnips, when plowed in as a green crop, are an admirable manure for wheat; but we doubt the economy of so disposing of them. Better feed them to cattle and convey the manure made by the animals eating them back to the soil. The manure thus made will do nearly as much good as if the turnips were plowed under.

May is rather too early, in this climate, to sow turnips. There would be danger of them running to seed. The first week in June is the proper time to sow ruta baga. The common turnip should not be sown till July, and often does well after wheat—sown in August.

Please give us the experiments you speak of. They would no doubt be interesting to us and our readers.

OILCAKE AND LINSEED.—As linseed oil cake is so very valuable in fattening various animals, would not the seed itself do better? And if so, how could it be best prepared from the unground seed? It is far easier for me to grow the seed, than to get either oilcake or the *seed* ground into meal. A SUBSCRIBER.—*Fuller's Point, Ill.*

Linseed is not more valuable for fattening animals than oilcake; it is, however, a most valuable and nutritious food. For rearing calves, linseed boiled into a "tea" or "soup" is second only to nature's food—the milk of the mother. In England, "linseed tea" is used to a great extent in conjunction with skimmed milk, as a food for rearing calves. It is also made into a jelly, mixed with bran, cut hay, &c., and fed to cattle, forming a most nutritious food. The method of preparing this "jelly," is to soak the seed in cold water for 48 hours; place it in a cauldron with about seven quarts of cold water to one quart of seed; boil the whole gently for two hours, stirring it to prevent burning at the bottom. Two quarts of the jelly is the usual quantity given to fattening cattle.

If it is so easy for you to grow linseed, would

it not pay you to grow it for the *flax*, which is transported to the eastern cities for so small a per centage of its value?

SOWING CLOVER AND TIMOTHY, &c.—A subscriber wishes to have a few hints on gardening, during the present year. Also, to know the best time for sowing clover and grass seed—how much, &c. He also wishes to inquire respecting worms boring in apple trees—how to prevent, &c. A. MARTIN, P. M.—*Nankin, Mich.*

We will endeavor to comply with the request respecting "hints on gardening," in our next number. Should be glad to have a few "hints" ourselves, on this or any kindred rural subject, from our many esteemed correspondents.

Clover should invariably be sown in the spring, 8 to 12 lbs. clean seed per acre. Timothy is sometimes sown in the fall, and does well; but in ordinary cases, the spring is in our opinion the best time. A better crop of timothy hay is obtained the first year by sowing in the fall, but we have known instances in which timothy sown in the fall has seriously injured the wheat crop with which it was sown. Eight pounds of clover and eight quarts of timothy seed is the usual quantity sown in this neighborhood. If timothy alone is sown, from half a bushel to a bushel of seed per acre is necessary, according to the quality of the land. Clays require more seed than rich mellow loams.

PEAS AND BUCKWHEAT ON NEW LAND.—Will peas do well on new land, and what is a good yield?
Also, does buckwheat succeed well on new land, and will it give hogs the itch, or kill them, if turned into the crop? WM. CHAMBERS.—*Kenton, Ohio.*

We can see no reason why peas, or buckwheat, should not do first rate on newly cleared land, if well put in. The great difficulty of pea culture, is the pea bug; but as the bug does little damage till late in the fall, if the peas are fed out early to hogs, they are the most profitable crop a farmer can raise, taking into account the little injury they do the land. Twenty bushels per acre is a fair crop.

Buckwheat will certainly not *kill* the hogs. Its heating nature produces great irritation of the skin, so that the hogs will rub all the hair off them and exhibit other symptoms of itch. Whether they actually have the disease or not, in most cases, we do not know. Will some of our experienced readers give us their views on this matter.

WORK ON HORSES.—Which is the best book published treating on the rearing and management of horses? Where can it be had and at what price, sent to a distance?
Why should colts not be curried till they are upwards of two years old? A SUBSCRIBER.

"YOUATT on the Horse," is perhaps the best book published on this subject. We can send it you, anywhere in the United States, for $1.25, postage paid.

There is no positive reason why colts should not be curried or cleaned. The only reason we ever heard offered is a negative one—they do as well without as with the cleaning. In the *Journal of the United States Agricultural Society* there is an admirable essay on the "Mismanagement of Horses," which we commend to your notice. $2 a year makes you a member of the Society, and entitles you to the quarterly journal, seeds, &c.

GUANO.—I should be very thankful to get information how those who have tried guano on fruit trees have applied it. I have a mind to try it on ground intended for 15,000 apple grafts, this spring, and I should like to apply it in the best way, if I knew how. I have asked you how to apply it to corn and oat ground, and am delaying plowing the oat ground until I get an answer. FELIX SENGER.—*Lacey Springs, Va.*

Sift all the lumps from the guano and break them. For oats, sow broadcast, about 200 lbs. per acre, after the land is plowed, and drag it in immediately. You need not mix plaster with it, unless you wish to sow plaster; and in this case, we should prefer to sow them separately. If you plant your corn three feet apart each way, 300 lbs. per acre would be about one ounce to a hill. Let this be spread where you intend the hill to be; cover it with a little soil and plant the corn above it. Be careful not to let the guano touch the seed, as it will injure or kill it.

OYSTER SHELLS.—Should oyster shells, for manure, be ground or burned. H. H. BLAKELY.—*East Aurora, N. Y.*

If we employ oyster shells for the nitrogen they contain, they should, of course, be ground, as the burning process would drive off all the organic matter. Estimated by the nitrogen theory, 125 lbs. of oyster shells are equal to 100 lbs. of barnyard manure. But the principle value of oyster shells, in our opinion, is the great amount of lime they contain in the form of a carbonate. By burning, we convert this carbonate of lime into caustic or quick lime, in which state it acts on the organic matter of the soil, and is most valuable in other respects. Burning is much the most economic way of pulverizing them.

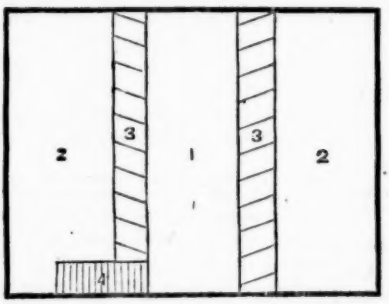
STALLS FOR CATTLE.—In answer to LEVI PADDOCK's inquiry, I would say that I am opposed to the common way of confining cattle, either by stancheons, chains, or ropes, because cattle are frequently put up by careless or awkward hands. I often hear of cattle getting loose and injuring each other in their stalls, and the best may sometimes miss their intentions. Therefore, I should recommend a stable to be divided into stalls, said stalls to be about four feet deep from the manger. At the edge of each division there should be a gate to swing to a post or stud in the rear; then

fasten them with a hook or pin. The gates should all open towards the door, four or five feet being sufficient for a cow. The stable should be ten or twelve feet deep. My stable is built in this way and I find no inconvenience. I winter from two to six head. My wife or little boy as often put up the cows as myself, and they like the plan.

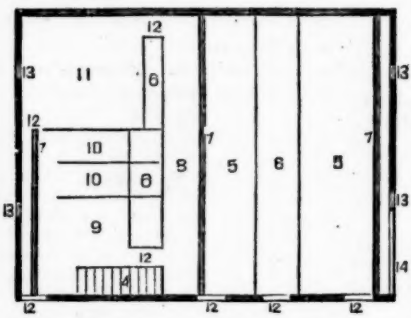
My gates are made as follows: I took a 3 by 4 pine scantling long enough to reach to the bars above, making mortices to receive an inch board up to the height of four feet; put in the board and confine the joints in like manner, but with shorter scantling. Made round tenons at the top and bottom of the longest scantling to fit a two-inch hole in the floor and above. JOHN JOHNSON. —*Perry, Ven. Co., Pa.*

BARN AND COW STABLE.—One of your correspondents in the November number, wishes for a plan of a hay barn and cow stable. I send you a rough sketch of one I have used for twelve years past, which answers my purposes tolerably well.

The barn is 33 ft. by 44 ft. There is stabling and cellar under the whole, and also a manure cellar under the stabling.



PLAN A.—*Upper Floor.*—1, Barn floor. 2, Bays for hay. 3, Spaces 3 ft. wide and 3 ft. high, with a lean-to roof partly under the bays for shoving hay into the mangers. 4, Stairs that lead to stables.



PLAN B.—*Lower Floor.*—5, Cows stables. 6, Mangers. 7, Planks 9 in. wide covering a space 7 in. wide running the entire length of the stable; they turn up on hinges for shoving the manure into the cellar below. 8, Stable for calves, with small stanchions. 9, Stables for oxen. 10, Stables for horses. 11, Cellar for roots, &c. 12, Doors. 13, Windows for ventilation. 14, Doorway under the stable, 10 ft. wide, for hauling manure from the cellar.

For a barn of this description, it is necessary to have a side hill or ground somewhat descending. It need not be very steep, as we can rise some to get to the barn floor, and we can also rise in getting out of the manure cellar. The manure cellar and stabling are built of stone, making the walls 14 ft. high, on which the barn is set.

In answer to your correspondent's considerations, I would say:

1. It is somewhat difficult to say how large a barn should be to stable twenty cows and contain their food. It would depend somewhat on the kind of hay used.

2. I do not know of any more convenient mode of storing the hay. Barns of the width of mine should have middle or upper plates to support the roof, and there should be posts on each side of the barn floor going up to the upper plates. The great beam should go near the top of the posts or into the upper plates. This makes it convenient in pitching off the hay.

3. The cellar you can make larger or smaller, so as to take in what roots, apples, pumpkins, &c., you may wish to store.

4. This is the most convenient way of feeding cattle I know of. The hay is shoved off one side the floor without the trouble of lifting. It falls into a double manger and fodders twenty head in the time it would take to feed ten any other way. In the above plan forty head may be fed from the barn floor. In a double manger, cattle eat coarse hay, straw, &c., much better than in single mangers.

5. The manure cellar is a good method of saving the liquid and solid excrements in one heap without the extra expense of making tanks, &c.

6. I think stanchions are best for confining cows. They should be at least three feet apart.

7. We have one barn half a mile from home. Here the cows are turned out and watered night and morning. The stables are cleaned out in the interval. The cows are kept shut up 22 out of the 24 hours. We think they do as well and better at this barn than where they lie out longer in the wind and on the snow. We shut up our cows at all times when we milk them. HORACE HUMPHREY.—*Winchester Centre, Ct.*

PLANTING HEDGES.—In regard to planting Hedges for fence, I wish to inquire, through the *Farmer*, if it would not be advisable, especially in fencing lots containing ten or fifteen acres, to prepare a bed and sow the seed where it is wanted for the hedge? And if so, what kind would you prefer to plant on dry sandy loam, to enclose say ten acres intended for an orchard? What time would be required? And what would be the probable cost? JAMES D. HUSTED. *Savannah, N. Y.*

SHEEP DISEASE.—Can you, or any of your valuable correspondents, inform me whether there is such a disease among sheep as *Stretches*, and if so, a remedy. H. NELSON. —*Waukesha, Wis.*

HEAVES.—There is an inquiry often made, but never satisfactorily answered, and which I now wish you or some of your eastern correspondents to reply to. It is in regard to a disease among horses known as "heaves"—a disease so common in many places at the east, that to see a horse ten or twelve years old free from it, is regarded as rather remarkable. There is no such disease known among horses reared here; and even horses brought here, having it very bad, in nearly every instance recover from it in a short time, and *always* are so far relieved as to render it scarcely perceptible. This is a very important matter—one worthy of consideration and investigation.

In addition to what has been said in regard to "heaves," it is also a well established fact that our horses are much more healthy than eastern horses, rarely being attacked with the ordinary diseases to which horses are subject, enduring more labor and greater exposure, and living to a much more advanced age. Further, if I mistake not, mares do not commonly breed at the east after they are twelve years old. Not so here; they breed very well until twenty, and often until twenty-five years old.

What reason can be assigned for the difference in favor of the health, longevity, &c., of our horses, as compared with those raised in an eastern climate, which is commonly regarded as much more healthy than a western?

The inquiry I started out to make in regard to the *cause* of "heaves," I perceive has taken a rather wide range; but I see nothing to take back. I. D. G. NELSON.—*Elm Park, Ind.*

CRANBERRIES.—I desire information about raising cranberries, from sowing the berries broadcast over prairie adapted to their growth. Do you know how they succeed when sown in this way, and will you give us your views in relation to the best manner of setting a field with them? We are trying them broadcast this winter, and my intention is to get the cranberry sod from the marshes, where they grow spontaneously, and set them about six feet apart, on low prairie adapted to their growth, unless you can tell us a better plan. CHARLES BRACKETT.—*Rochester, Ind.*

WHEAT BLIGHT IN ILLINOIS.—For a number of years our spring wheat, more particularly, has been diseased by what is termed blight; that is, when it begins to ripen, the head, or a part of it,—sometimes but a few kernels, and from that to the whole head,—will turn black and rot on the stalk, whilst other kernels will be plump and bright; so that a fine growth of straw will yield but from 6 to 10 bu., and that of the poorest quality. Now, can you tell us anything about the cause, and remedy. If so, you will confer a great favor. J. D. TRIPP.—*Belvidere, Ill.*

CIDER MILL.—Will you please give me, in your excellent paper, a plan of the cider mill now in use, (more particularly the grinding part,) for using one horse, the length of the sweep not to exceed ten feet; how fast it will grind, and its probable cost. W. AINSWORTH.—*Cape Vincent.*

Farm Implements for California.

BURRALL'S Prize Reapers, Mowers, Threshers, and Separators; Clod Crushers, Field Rollers, Cultivators, Horse Powers, &c., &c.; all warranted of the best material and workmanship,—strong, simple, and reliable,—expressly for that market. Made, and sold cheap for cash, by

THOMAS D. BURRALL,
[2-3t] Geneva, Ontario Co., N. Y.

North River Ag. Warehouse and Seed Store.

53 CORTLAND ST., NEW YORK.

GEORGE H. BARR & Co. invite the attention of Farmers, Planters, and others, to their large and varied assortment of Agricultural Implements, Seeds, Manures, &c., &c., all of which will be furnished at the lowest prices. Their assortment includes

PLOWS—All the improved kinds by the most approved makers.

HORSE POWERS—Of all kinds and sizes, with and without Threshers, &c.

CORN SHELLERS—All the approved kinds, and some of recent introduction.

STRAW CUTTERS—Of all sizes, and kinds, for hand and horse power.

CORN AND COB CRUSHERS—Of all kinds and sizes.

FANNING MILLS, CULTIVATORS, HARROWS, CHURNS of all the approved kinds.

RAKES, HOES, FORKS, and a general assortment of Horticultural and Garden tools.

Fruit and Ornamental Trees.

FOR sale, as usual, at our old location on East Avenue.

BISSELL & HOOKER,
[3-2t] Commercial Nurseries, Rochester, N. Y.

Emery & Co.'s Improved Horse Powers, Threshers, and Seperators.

THE undersigned have been appointed sole agents for the sale of Emery's new Patent Improved Horse-Powers, Threshers, and Separators, in the city of New York. The State Agricultural Warehouse is the only depot where this superior Power can be had.

LONGETT & GRIFFING,
7-tf. State Ag. Warehouse, 25 Cliff st., New York.

New Pension Laws.

REVOLUTIONARY, Indian Wars, War of 1812, Florida, and Mexican Wars. Claims for Pensions allowed the widows of those who died in service, prosecuted by

F. E. HASSLER,
Washington City, D. C.

☞ All letters must be pre-paid.

Refers to Hon. Lynn Boyd, Speaker, H. R. Hon. J. D. Doty, H. R. March, 1853.

New York Ag. Warehouse and Seed Store.

THE subscriber has constantly on hand the most extensive assortment of the best and latest improved Agricultural and Horticultural Implements, and Field and Garden Seeds, ever offered for sale in the United States, embracing every Implement, Machine, or Seed desirable for the planter, farmer, or gardener. Also, Guano, Bone Dust, Poudrette, Plaster of Paris, and Superphosphate of Lime.

R. L. ALLEN,
March, 1853.—3t. 189 & 191 Water St., New York.

Superphosphate of Lime.

THE genuine article, manufactured by C. Duburg, in bags of 150 lbs. each. The subscribers have made a contract for a large quantity. We are now prepared to supply any quantity that may be ordered. Farmers and gardeners would do well to call on us before purchasing elsewhere, as we are now able to sell for a less price than heretofore offered. Every bag is branded "C. Duburg, Extra, No. 1."

LONGETT & GRIFFING,
State Agricultural Warehouse, No. 25 Cliff Street, New York. [11-tf]

Osage Orange.

IT has now been demonstrated that this plant will make a better hedge than anything heretofore used for that purpose, and that it is perfectly adapted to this climate. Some of its advantages are as follows:

Animals of every kind are fearful of it, for it has as many strong, sharp thorns as there leaves upon the plant.

No animal will browse it, not even to eat a single leaf.

It grows rapidly and will make a perfect hedge against man or beast in four or five years.

It is perfectly hardy, as has now been well proved on our own premises.

☞ We offer for sale 25,000 fine plants. Price $10 per 1000.

BISSELL & HOOKER,
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Samuel Moulson,

OFFERS, at the old Rochester Nursery, a very select and extensive assortment of Standard and Dwarf Pear Apple, and Cherry Trees, and a limited assortment of Peach and Plum of small size.

Among the Apples are 20,000 large Northern Spys.

The Pears consist of over 40,000 of all the leading and well established sorts.

10,000 Giant Rhubarb producing large petioles of first quality, that bear carriage for market purposes better than any other sort. $00 per thousand eyes, or $10 per hundred.

Osage Orange, 1 year old, $8 per thousand; 2 years old, $10 per thousand.

Also, a large assortment of Ornamental items. Price list, and an inventory of the stock, with the height of each variety, sent to all pre-paying applicants forwarding a one cent stamp.

Also, will be published early in March, Hints on Planting Orchards, and Culture of Fruits, Descriptive lists of best sorts, and a Synopsis of M. D'Albert's mode of forming Pyramidal Trees—translated from the French. Will be sent by post on 27 cts. being remitted in a prepaid envelope.

☞ Office 36 Front Street, Rochester, N. Y.

MOUNT HOPE NURSERIES.

FRUIT AND ORNAMENTAL TREES.

ELLWANGER & BARRY desire to call the attention of nurserymen, dealers, and planters, to the immense stock of trees now on their grounds, embracing Fruit Trees of every description, viz:

STANDARD APPLES, PEARS, PLUMS, CHERRIES, PEACHES, &c., on free stocks, for orchards, vigorous and well formed.

DWARF AND PYRAMIDAL PEAR TREES, on quince stocks. About 50,000, embracing every fine variety that can be worked, two year old trees, low branched, vigorous and beautiful.

DWARF AND PYRAMIDAL CHERRIES, on Mahaleb stocks. Fine one, two and three years old trees, well branched and finely formed.

DWARF APPLE TREES, on Paradise and Doucain stocks. Beautiful two year old trees, with heads, for immediate bearing—besides vigorous yearlings.

GOOSEBERRIES.—Large Lancashire sorts. Strong plants for immediate bearing.

CURRANTS.—Including the Cherry, Victoria, White Grape and many other new and fine sorts. See our Catalogue.

RASPBERRIES.—The new Large fruited Monthly, Fastolff, &c. &c. A complete collection of all desirable varieties.

GRAPES.—Hardy, native sorts—Isabella, Catawba, Clinton, &c.—strong 5 and 3 year old vines. Thirty varieties of Foreign Grapes, for vineries—strong, thrifty plants, in pots.

STRAWBERRIES of all desirable varieties, and all other fruits cultivated.

RHUBARB.—Genuine Myatt's Victoria, Myatt's Linnæus, Mitchell's Royal Albert, Downing's Colossal, and hybrids of the above, of our own raising from seed, quite equal to any of them.

The entire fruit department is under our own personal supervision. The best quality of stocks is used, and the most scrupulous attention given to insure accuracy. We flatter ourselves that no nursery collection can offer a stronger guarantee to purchasers, in this respect. The stock is all grown on new, fresh soil, and is healthy, well matured, and hardy. We ask purchasers to examine it.

ORNAMENTAL.—Large trees, for streets, parks, &c., such as Horse Chestnuts, Silver Maples, Sugar Maples, Snowy Abeles, Mountain Ash, Elms, and Tulip Trees, in large quantities, cheap.

RARE ORNAMENTAL LAWN TREES—embracing the most novel, remarkable, and beautiful trees and shrubs, both deciduous and evergreen, that can be grown in our climate. For particulars we must refer to the descriptive catalogue.

ROSES.—One of the richest collections in the country, including the newest and best European varieties, selected by us in person, last summer.

BULBOUS ROOTS—imported annually from Holland.

DAHLIAS.—The new English and French prize sorts of 1851 and 1852, besides fine older ones.

All articles packed in the best manner, and forwarded to any part of the United States, Canada, or California.

Orders strictly complied with in every particular.

The following catalogues are sent gratis to all who apply and enclose stamps to cover postage, which must be prepaid:

No. 1. A Descriptive Catalogue of Fruits.

No. 2. A Descriptive Catalogue of Ornamental Trees, Shrubs, &c.

No. 3. A Catalogue of Dahlias, Fuchsias, Chrysanthemums, and bedding plants.

No. 4. A Wholesale Catalogue, for nurserymen and others who wish to purchase largely.

Mount Hope Nurseries, Rochester, N. Y., March, 1853.

Evergreen Trees and Shrubs.

The following Evergreens can be supplied by the quantity, at low prices:

Norway Spruce, from 6 inches to 2 feet.
American White Spruce, 2 to 3 feet.
Balsam Fir, 2 to 4 feet.
Austrian Pine, 1 to 3 feet.
Scotch Fir, 1 to 3 feet.
Red Cedar, 1½ to 2 feet.
American Arbor Vitæ, 1 to 2 feet.
Chinese Arbor Vitæ, 2 to 3 feet.
Deodar Cedar, 1 to 1½ feet.
Chili Pine, (Auracaria imbricata,) 12 to 18 inches.
Japan Cedar, (Cryptomeria Japonica,) 1 to 5 feet.
Lofty or Bhotan Pine, (Pinus excelsa,) 1 foot.
Himalayan Spruce, (Abies morinda,) 6 to 12 inches.

And many other rare species and varieties, forming one of the most complete assortments of Conifers in the United States. ELLWANGER & BARRY,

Feb. 1, 1853. Mt. Hope Nurseries, Rochester, N. Y.

HIGHLAND NURSERIES, NEWBURGH, N. Y.

A. SAUL & CO., in inviting the attention of their patrons and the public in general to their very extensive collection of

FRUIT & ORNAMENTAL TREES, SHRUBS, &c.,

would respectfully inform them that the stock which they offer for sale the coming spring is unusually fine, both as regards quality of trees, variety of kinds, &c., &c.

The soil and climate of the Hudson Highlands have rendered proverbial the success of the trees sent from here to all parts of the Union, and the accuracy and precision so indispensable in the propagation of fruit trees for which this establishment has long been celebrated, render errors in nomenclature of rare occurrence.

They have propagated in large quantities all the leading standard varieties which are proved best adapted for general cultivation, especially those recommended by the American Pomological Society, as well as all novelties both of native and foreign origin.

To particularize within the limits of an advertisement would be impossible; they refer to their General Catalogue, a copy of which will be sent to all post-paid applicants, on enclosing a Post Office stamp.

The following comprises a portion of their stock, and are all of fine growth, viz:

PEARS in over 400 varieties, both standards on their own stock for orchard culture, and on the quince for dwarfs, pyramids, and quenouelle, for garden culture.

APPLES in over 200 varieties, both standards and dwarfs.

CHERRIES, both standards and dwarfs.

PLUM, APRICOT, PEACH, NECTARINE, and QUINCE trees, in every variety.

GRAPE VINES, both native and foreign for vineries. Also, GOOSEBERRIES, (50 best Lancashire varieties,) CURRANTS, RASPBERRY, and STRAWBERRY plants, of all leading and known kinds, together with

SEA KALE, ASPARAGUS, and RHUBARB roots.

ORNAMENTAL TREES, SHRUBS, and VINES, both deciduous and evergreen, suitable for street and lawn planting, embracing all the new and rare Conifers, weeping trees, and shrubs of recent introduction.

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DAHLIAS and BEDDING PLANTS, for the parterre and flower garden, in large quantities and variety.

HEDGE PLANTS.—100,000 Buckthorn and Osage Orange plants, two years growth; Arbor Vitæ for screens, &c., &c.

Dealers and Planters of trees on a large scale will be dealt with on the most liberal terms.

Newburgh, March, 1853.—2t.

C. J. RYAN, & Co.,

PROPRIETORS OF THE ROCHESTER AND CHARLOTTE PLANK ROAD NURSERIES,

Office 68 State Street, Rochester, N. Y.,

TAKE this method of returning thanks to the citizens of Rochester and the public for the very liberal patronage they have received which enables them to extend their business both in the glass and out door departments.

☞ They offer for sale at low prices a general nursery stock of fibrous rooted Fruit and Ornamental Trees, Shrubs, Plants, Bulbs, Roots, and Hedge Stuff of every description.

A few hundred Roots left of our Superb Dahlias. The following awards speak for their superiority:

Highest Premium at the Monroe County and Genesee Valley Exhibitions of 1850 and 1852.

Highest Premium at the New York State Fair held in Rochester in 1851.

Highest Premium at the Provincial Agricultural Societies of the Canadas held in Brockville in 1851, and in Toronto in 1852.

Our flowers have obtained the highest awards wherever exhibited.

A select collection of Green-house plants and Roses for sale, a large stock of plants for bedding out approved varieties kept in pots will be sold low.

March, 1853—1t.

Basket Willow.

CUTTINGS of the best kind of basket willow (with directions for planting) for sale at $5 a thousand by

WM. H. DENNING,

March, 1853—2t*. Fishkill Landing, Dutchess Co.

FRUIT TREES, &c.

A. Frost & Co., Genesee Valley Nurseries, Rochester, N. Y.

OFFER for sale the following at low prices, which comprises a part of their large stock, that they will forward to any part of the country. Parties can depend that no second rate articles will be sent out, and that they will prove to be true to description. The packing is done in the most secure manner, that plants may reach their destination in perfect safety.

APPLE TREES.—Standards of fifty best leading varieties of apples. Dwarf and Pyramidal bushes, 1 and 2 years old, for gardens.

PEAR TREES.—Standards, on pear stock, 2 and 3 years old, comprising all the fine sorts. Pyramidal and Dwarf, worked on imported Quince, 2 and 3 years old. Pyramidal, extra size, with fruit buds.

CHERRY TREES.—Standards, a large collection embracing 48 best sorts. Dwarf and Pyramidal, 2 years old, for orchards and gardens.

PEACH TREES.—All the desirable varieties.

PLUM, NECTARINE and APRICOT Trees.

QUINCE BUSHES.—Portugal, and the Apple or Orange.

GRAPE VINES.—Native—Catawba, Clinton, and Isabella. Foreign, in pots, suitable for planting at once; embracing 13 of the finest sorts.

CURRANTS.—White and Red Grape, Cherry, May's Victoria, White and Red Dutch, Black Naples, English, and 8 other kinds.

GOOSEBERRIES.—A large stock of 40 Prize Lancashire varieties, best suited for cultivation in this climate.

RASPBERRIES.—Yellow, or White, and Red Antwerp, Fastolf, Franconia, Large Fruited Monthly (Rivers,) and the Red Antwerp which is so extensively cultivated on the Hudson for the New York market.

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ESCULENT ROOTS.—Asparagus, 2 years; Rhubarb of all sorts; Sea Kale, &c The Asparagus will be sold very low, if a large quantity is taken.

HEDGES.—Privet, 2 years; Buckthorn and Osage Orange, 1 year.

THE ORNAMENTAL DEPARTMENT

is very extensive, and they refer parties to their catalogue for the varieties they cultivate, but will notice the following:

SALIX PENDULA.—A new Weeping Willow. It is one of the most beautiful and graceful trees, for lawns, &c., in cultivation.

ROSES.—An extensive stock on hand, comprising more than 300 of the varieties. 150 of the sorts are Remontant or Hybrid Perpetuals, many of which that are now offered by them are presented to the public for the first time in this country.

BULBS.—Of those that are suitable for planting in the spring, they have strong flowering ones of Japan Lilies, which will produce from one to five blooms each, as follows: Lancifolium album and rubrum, Lancifolium punctatum.

BEDDING PLANTS.—Their stock of Dahlias, Verbenas, &c., &c., for extensive and choice varieties of the respective kinds, cannot be excelled, if equalled, in the United States.

100,000 Norway Spruce Firs, and other hardy evergreens 4 to 15 inches high. Price very low by the quantity.

☞ The following Descriptive Catalogue, lately published, and containing the prices, will be mailed *free*, upon application, when *one* cent postage stamp is enclosed for each Catalogue wanted, to any part of the country.

No. 1. A Descriptive Catalogue of Fruit and Ornamental Trees, Shrubs, &c., &c.

No. 2. A Descriptive Catalogue of Dahlias, Verbenas, and other bedding plants.

No. 3. A Wholesale Catalogue or Trade List, for nurserymen and others who wish to buy in quanties.

March, 1853.

Gooseberries, Fastolf Raspberries, &c.

JOHN SAUL, Washington, D. C., offers the following for sale:

4,000 Lancashire Gooseberries, comprising all the leading varieties, such as Crown Bob, Roaring Lion, Red Warrington, Champagne, Leigh's Rifleman, Parkinson's Green Laurel, Woodward's Whitesmith, &c. The plants are very vigorous and thrifty, and true to name.

4,000 Fastolf Raspberries, strong canes, warranted the genuine variety.

300 Raby Castle or Victoria Red Currant,—the largest and best. 300 Wilmot's large Red do. 500 White Dutch do. 300 Black Naples do.

☞ The above at very reasonable prices.

March, 1853—2t.

D. S. MANLEY & BROTHER,

BUFFALO NURSERY,

Buffalo, N. Y.

HAVING purchased this well established Nursery of its original proprietor, Col. B. Hodge, we take pleasure in offering for sale an unusually fine assortment of

FRUIT AND ORNAMENTAL TREES, SHRUBS AND PLANTS.

Our Fruit Department is supplied with fine healthy trees on their own stocks, of all the desirable varieties now in cultivation, together with Cherries and Pears dwarfed on superior stocks.

The Ornamental Department includes all the best varieties of Evergreen and Deciduous trees.

Roses.—One of the finest collections in this country, comprising all that are new and rare.

Dahlias.—An unrivalled selection of Dahlias, which has been procured at great cost.

Peonias.—We call particular attention to our stock of Peonias, both herbaceous and tree varieties.

The stock of *Shrubs* is unusually extensive and was collected by the late proprietors with peculiar care.

Of Currants, Gooseberries, Raspberries, Grapes, and Strawberries, we have vigorous plants of the best varieties.

It will please us to furnish all applicants with our Catalogue.

NURSERY NOTICE.

A Rare Chance for Beginners.

THE subscribers, being desirous of clearing the land for other purposes, offer for sale the coming spring, at very low rates, and in lots to suit purchasers,

15,000 Apple trees, 2 years from graft.
25,000 " 1 year "
2,000 Pears on Quince, 1 year from bud.
5,000 Standard Cherries, 1 year from bud.
2,000 Peaches, 2 years from bud.

Also, 10,000 yearling Cherry Seedlings, root-pruned.

The trees are well grown, in good condition, and may be relied on; and for beginners this is a rare chance, not only for obtaining a marketable stock sooner and cheaper than the usual mode, but also for securing as good an assortment as can be desired, comprising the principal varieties of merit now cultivated in our country.

All communications, &c., should be sent in as early as possible, to prevent disappointment or delay.

Catalogues furnished to all post-paid applicants enclosing one postage stamp. Address

SHEPPARD, CHERRY, & CO.,
Feb'y, 1853. River Bank Nursery, Rochester, N. Y.

Norway Spruce, Silver Fir, &c.

JOHN SAUL, Washington, D. C., offers the following for sale:

300,000	Norway Spruce,	4 to 6	inches.
300,000	" "	6 to 8	"
15,000	" "	9 to 12	"
8,000	" "	2 to 3	feet.
10,000	Silver Fir,	4 to 5	inches
30,000	" "	5 to 6	"
10,000	" "	6 to 7	"
1,000	" "	12 to 18	"
1,000	" "	2 to 3	feet.
8,000	Larch (Europ'n)	2 to 3	"

The attention of Nurserymen and Planters generally, is respectfully called to the above extensive collection, which will be sold at very low prices. Persons taking large quantities will be dealt with liberally. The whole are remarkably thrifty and fine.

March, 1853—2t.

Premium Dahlias.

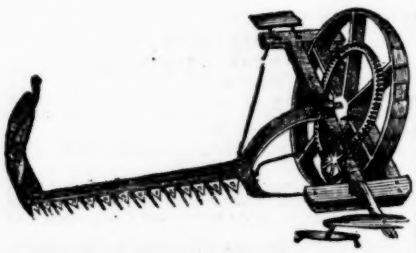
THE subscribers offer for sale this Autumn and the ensuing Spring, 10,000 Dahlia Roots, which have proved to be the choicest collection in the States and Canadas. [See records of the Fairs for the last four years.]

Persons commencing the Nursery business, and Amateurs, will find it to their advantage to give us a call, or make enquiries before purchasing elsewhere.

C. J. RYAN & CO.,
Rochester and Charlotte Plank Road Nurseries, Rochester, N. Y. [11-tf]

Prouty and Mear's Plows.

A large assortment of these celebrated Plows can be found at the North River Agricultural Warehouse and Seed Store, 53 Cortland St., New York. GEO. H. BARR & CO.



KETCHUM'S PATENT MOWING MACHINE.

Howard & Co., Proprietors & Manufacturers,

BUFFALO, N. Y.

THIS justly celebrated machine has been steadily advancing in public favor, for its simplicity durability and efficiency—and it has settled the question beyond a doubt that grass can be cut by Horse Power; for during last season, five hundred of these machines were sold by us, and universally approved of by those who used them. Farmers were daily in the habit of cutting from ten to fifteen acres per day, with ordinary driving. It leaves the grass uniformly spread over the ground, requiring no turning to cure properly. In the Report of the Committee who served at the Trial of Mowing and Reaping Machines, held at Geneva in July last, they show fully and conclusively *this to have been the only machine in the field which cut its allotted two acres without clogging or any interruption*, doing its work admirably, and in far better manner than can be done by manual labor with a scythe. Our knives are not *sickle-edged*, consequently do not clog at every little hummock or bog they may happen to come in contact with. The Committee also show that there is an actual saving, by the use of this machine over hand labor, of $18 per day. We have only to refer those who want a perfect Mowing Machine to examine the Report and judge for themselves. This machine took the first premium as a mower, at the trial in Springfield, Ohio; a gold medal at the Fair of the American Institute, N. Y., also, first premium at the Provincial Fair at Toronto, C. W.

They are so very compact that one of them can be easily carried in an ordinary one-horse wagon, and so very simple that it requires no machinist to put it together, as there are but two bolts (beside the pole bolts) to be secured to have the machine ready for use, and which does not require over ten minutes time. They weigh about 750 lbs., and can be worked by any boy who can manage a team. We have made all the improvements suggested by experience in the way of strength, durability, &c., and sell them under the following warranty: That said machines are capable of cutting and spreading, with one span of horses and driver, from ten to fifteen acres per day, of *any kind of grass*, heavy or light, wet or dry, and do it as well as is done with a scythe by the best of mowers. They are equally capable of cutting barley, buckwheat, millet, &c. It is much less trouble to keep the knives in order than a scythe, as they have frequently been known to cut from ten to fifteen acres without sharpening, which can be done on an ordinary grind-stone in a few minutes. We can give any reference required, for the full performance of our machine, as above stated.

Orders should be sent in early, as we shall manufacture but a limited number. The price of our machine, including two sets of knives, extra knife blades, wrench, &c., is $110, cash, in Buffalo, the machine to be delivered on board of boat or cars free of charge.

Office and shop, corner of Chicago street and Hamburgh canal, near Eastern R. R. Depot, Buffalo.

March, 1853—tf. HOWARD & CO.

☞ J. RAPALJE & Co., are sole agents for the sale of the above machine in Rochester, which they will sell at manufacturers' prices.

Manures.

FERTILIZERS of all kinds for sale by the subscribers.

Improved Superphosphate of Lime, Superphosphate of Lime—both the above made after the recipe of Prof. Mapes.

Peruvian Guano, Sulphuric Acid, Bone-dust, Potash Sparlings, Poudrette, Plaster of Paris, &c. &c.

GEO. H. BARE & CO.

58 Cortland St., New York.

EMERY'S MOWER AND REAPER.

THE subscriber, not only having made himself practically acquainted with the construction and working of all the successful machines of this class, but having made and successfully introduced several valuable improvements in some classes of agricultural machinery, which have already gained favorable and world-wide reputation and adoption, flatters himself that he has also made an improvement in the construction of a Mower and Reaper of equal if not greater merit, than any of his former improvements.

It will suffice to say, that while this is the most compact, light, simple, cheap, durable, easy working machine, it is at the same time the most perfectly adjustable, and easily convertible into a Mower or Reaper, working as perfectly in either form as those of the best other kinds, whether simple or combined. The frame itself is so suspended upon the axis of the main wheel, as to be elevated and depressed at pleasure, so as to secure a horizontal or inclined (forward or back) position of the whole machine, at whatever elevation used, thus always having the cutting works in proper position.

In reaping, a reel is used, and the raker stands erect, face forward and directly behind the platform, with a support about him; the movable platform being on the same plane with the frame-work at the side of the discharge, and at the same time about two inches above the stubble. With the above introduction, and the diagrams to follow, together with those in this number of the Genesee Farmer, the public will have before them several machines from which to make a selection before purchasing for the coming season, and at the same time know what they are purchasing, much better than to be guided alone by impracticably written and published reports of committees of public trials, and be enabled to purchase only such articles as have their practical as well as theoretical merits plainly pointed out, or if not so pointed, to purchase only of responsible manufacturers, who are willing to back their machines by their reputation and capital.

For further particulars concerning the Reaper and Mower above described, address

HORACE L. EMERY, Albany, N. Y.

March, 1853.

☞ E. D. HALLOCK, No. 50 State street, Rochester, is agent for Western New York, and will have one put up in running order in his store. Those in his vicinity wishing to obtain a Reaper and Mower, are requested to call and examine the merits of the above machine before purchasing elsewhere.

Superphosphate of Lime.

THIS extraordinary fertilizer, the effects of which as a manure and general assistant to soils, has proved itself invaluable to the agriculturist. This most important constituent of the soil is being daily removed and taken up in solution by plants, and unless such substance be returned fertility must decrease and the land become poor, its promoting and pushing power of growth giving strength to young plants while in their tender state and fortifying them for early maturity, excels over all other *manures*. It is some ten years since its introduction in England, where, from its pronounced *magic effects*, its introducer received a patent right from the English government.

The progressive high repute of its properties has caused the demand to increase each year. At the present time some thousand *tons* are annually sold to the farmers.

The subscriber has had much experience in the peculiar manufacture of this manure in Europe, which leads him to suppose that he stands unequalled by any competitor. Some considerable quantity was sold last season and tried on various crops, the beneficial results of which has caused orders for forward delivery in the coming spring to a large extent. Being in a powder, it is easy in handling, may be drilled in with seed, sown, &c.

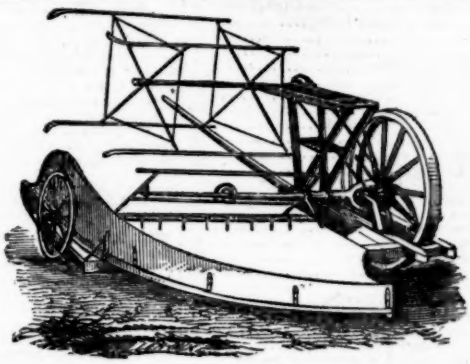
To prevent deception being practiced, all packages will henceforward be branded with the maker's name. For sale at the following Agricultural warehouses:

LONGETT & GRIFFING,
25 Cliff St., New York,
R. L. ALLEN, (late A. B. ALLEN & Co.,)
189 Water St., New York,

where purchasers may be sure of obtaining a chemically pure and genuine article.

☞ Enquire for C. B. DEBURG'S No. 1 Superphosphate of Lime. [3-3t]

Northern N. Y. Live Stock Insurance Company, Plattsburgh, N. Y. For terms, please apply to agents of the Company.



PALMER AND WILLAMS' SELF-RAKING REAPER.

THIS machine was patented July 1st, 1851, and has been thoroughly tested the two past years. It is very simple in construction, having only one entire cog wheel and one pinion in the whole machine. The driving wheel is about four feet, and the ground wheel thirty inches in diameter, and are so arranged as entirely to obviate the side draft, and hence a single team can manage it with speed and ease. The knife or sickle is scolloped, and cannot be clogged in any kind of grain. The grain is raked off so as to be out of the way of the team in repassing, and is in good shape for binding. The size of the sheaf is perfectly under the control of the driver. By a simple movement of his foot, he can throw the rake in and out of gear. If, however, he pays no attention to it, then the raking off will be done at regular intervals. In backing, the entire machine is thrown out of gear, and ceases to operate. *We* are the exclusive manufacturers of this Reaper for the harvest of 1853, and have been extensively engaged for several years in the manufacture of agricultural implements, and have examined the working of several Reapers, and received proposals for building others, but consider this far superior to them all. Such is our confidence in its superiority that we now have *one hundred* of them in course of manufacture, and shall be ready to deliver them on orders by the 1st of June next. We warrant the Reaper *well made* of good materials, durable with proper care, and capable of cutting better than by ordinary cradling, from 15 to 20 acres of standing grain per day, laying it in gavels for binding.

Appended are a few certificates of its operations:

JANESVILLE, Wisconsin, Jan. 12, 1853.

MESSRS. PALMER & WILLIAMS, GENTS:—After receiving your Reaper I laid mine aside, and finished my harvest with yours, (40 acres.) It is a perfect self-raker, it cuts the grain perfectly in all conditions, and rakes it off out of the way of the team in repassing. It runs lighter than any reaper I have ever used, two horses managing it with ease. Farmers can now rely upon a Self-Raking Reaper, that will work to their satisfaction. H. P. CULVER.

BATAVIA, Oct. 6, 1852.

MR. PALMER, SIR:—I have cut 70 acres of wheat with the Reaper I purchased of you. Much of it was heavy and lodged. It cut it in the neatest manner and raked it off better than it could have been done by hand, leaving the grain ready to bind. I only used one span of horses and cut nine acres and a half in 3 Hours and 55 minutes. I cut nineteen and a half acres per day. I believe I can cut with one good team, 25 acres per day. I have used other kinds of Reapers, but consider yours vastly superior to all others; in a word, it is easy for a team, does the work well, and is a very great saving of labor and grain.

Yours, &c., C. R. BRINKERHOOF.

BATAVIA, N. Y., Oct. 25, 1852.

MESSRS. WILLIAMS & PALMER, GENTS:—We, the undersigned, saw the Reaper (known as "Williams & Palmer's Self-Raking Reaper,") in full work in C. R. Brinkerhoof's wheat field, in the last harvest, in this town and we are glad of the opportunity to express our entire approbation in the work done, both in cutting the grain and raking it off the machine. We were surprised with its simplicity, and could not but admire the ease with which the raking part is controlled.

H. U. SOPHER, H. H. CORBIN,
JOSEPH GATES, M. U. SOPHER,
JOHN DORMAN, E. HOWELL,
H. BOSTWICK, REV. A. STEEL,
CHESTER SCOTT, R. FERRON.

SWEDEN, Jan. 1, 1853.

MESSRS. J. GANSON & CO.:—I have examined the Self-Raking Reaping Machine now being built by you. I have had a good deal of experience in harvesting grain with a Reaper, usually cutting my own grain, from 100 to 150 acres per year, and am free to say that I consider Palmer & Williams' Self-Raking Machine the best Reaper I have ever seen. F. P. ROOT.

BROCKPORT, Jan. 1, 1853.

MESSRS. J. GANSON & CO., SIRS:—I cut with the Self-Raking Machine I had of Palmer & Williams, in the last harvest, about 80 acres of wheat; some of it was badly lodged. I have tried several reapers, but consider yours vastly superior to any I have ever used. The raking off was well done. It drops the grain in good shape for binding, without leaving a trail. The cutting is done without clogging and the draft I think full one-third easier for a team than the ordinary reaper. ISAAC PALMER.

SPRINGFIELD, Ohio, July 2, 1852.

MR. PALMER:—This certifies that we were the binders of the grain on the final trial of Reapers, by the Ohio State Agricultural Society, and that it is our opinion that Palmer & Williams' Self-Raking Reaper left the grain in the best manner for binding of any Reaper on the ground, and that it done all its work equal to any of them.

SAMUEL PATTEN, JOHN MANGAN,
WM. A. REID, JOHN FARREL,
TIMOTHY MANGAN, MICHAEL HARD,
WM. FOSTER, *Owner of the Land.*

AGENTS—J. Rapalje & Co., Rochester; W. K. Marvin, Lockport; C. R. Brinckerhoof, Batavia; N. U. Tracy, Penn Yan.

French Zinc Paint.

THIS new and beautiful article of Paint is now offered to the trade and public, ground in prepared linseed oil, for the first time in this country. It has been used successfully in France for the last five years, where it has superseded white Lead as a paint.

The French Zinc when properly prepared and used, makes the most brilliant and durable white in use, and is entirely free from all poisonous qualities.

The French Zinc is not more expensive than white lead, and is prepared in such a manner that it requires no farther preparation for use, than to thin it with Turpentine or raw Oil to the consistency of white lead paint.

The French Zinc is very much whiter, and has a better body, than the New Jersey Zinc.

The French Zinc is offered dry, and prepared as above, in quantities to suit purchasers, at the Manufacturer's Depot, No. 17 Buffalo st., Rochester, N. Y.

July, 1853, M. F. REYNOLDS.

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Emery's Patent First Premium, 1852,
RAILROAD HORSE POWER,
THRESHING MACHINES, SEPARATORS, &c.,
Western New York Agency.
E. D. Hallock, Agricultural Warehouse,
No. 50. STATE ST., ROCHESTER, N. Y.

THE Subscriber, late from the Albany Agricultural Works, Warehouse, and Seed Store, where he has been engaged for the past six years, has secured the sole Agency for the sale of Emery's Patent Railroad Horse Power for Rochester and vicinity, so widely and favorably known throughout the country, and which has, without exception, taken every highest premium awarded in the States of Ohio, Michigan, and in New York, for the best Railroad Horse Powers, in 1850, 1851, and again in 1852, also at the Provincial Fair of Canada, recently held at Toronto, was awarded a Diploma and £2, of which the judges highly commend the principle and workmanship of this Power, now offer them at manufacturer's prices, with the transportation added, and subject to the warrantee as follows:

"To work to the satisfaction of the purchasers as represented in Circulars and Catalogues, or to be returned within three months and full purchase money to be refunded."

For further particulars see Circulars and Catalogues, which are furnished gratis on application to the subscriber.

The attention of the Farming public is solicited, and a careful investigation into the construction of this Power, and its comparative merits, as well as price, is requested before purchasing elsewhere.

The Wheeler Power is also offered *ten* dollars cheaper than heretofore by any other agency, and subject to same warrantee as given by others for the same kinds. Samples will be kept constantly on hand, and to insure promptness and avoid disappointments in supplying them, farmers are requested to send in their orders at as early a date as possible.

He will keep for sale, Emery's Seed Planters, the best in use; Circular and Cross Cut Saw Mills, Feed Mills, Corn Stalk and Hay Cutters, Corn Shellers, Churning fixtures, &c., adapted to the Power.

Also, Reapers, Mowing Machines, Grain Drills, Plows, Harrows, Cultivators, Corn Shellers, Hay Cutters, Fan Mills, and agricultural and horticultural implements generally. He will be prepared to furnish dealers with Dunn and Taylor's well known Scythes; also, Manure, Straw, and Hay Forks, Snaths, Rifles, and other haying tools, at manufacturers' prices, wholesale and retail.

Particular attention is called to A NEW PLOW, which is believed to be the best cast-iron Plow ever offered, and which is warranted to do better work, with less expense of team than any plow heretofore sold in this vicinity, while the price is less than for any other equally well finished.

The "uniform one-price, cash system" will be adopted, with the prices as low as the cost of articles and just compensation for labor and time will allow. Farmers and others are invited to call and examine the stock of Machines and Implements,—and are assured no effort shall be wanting to meet promptly the wants of a discriminating public. [11-tf] E. D. HALLOCK.

THE HORTICULTURIST,
And Journal of Rural Art and Rural Taste.

THIS is a Monthly Journal of 48 pages, beautifully printed on the finest paper, and elegantly illustrated, making one of the most beautiful Monthly Magazines published in the world. It is devoted to Horticulture, in its various departments, Rural Architecture, and to all that concerns Rural Life, and to the cultivation of Rural Taste.

It is edited by P. BARRY, so long known and esteemed as the Horticultural Editor of the *Genesee Farmer*, and published at the low price of $2 per year. A discount of 20 per cent. allowed to agents. JAMES VICK, JR.,
Publisher, Rochester, N. Y.

LINNÆAN GARDEN AND NURSERIES,
FLUSHING, N. Y.

WM. R. PRINCE & Co. intend selling off the trees from fifty acres of their Nurseries the present spring, the ground being wanted for buildings. The collection is unrivalled, and Nurserymen that desire assortments of the very best articles will never meet a more favorable opportunity, as they will be sold low for cash, or at credits suitable to the purchasers where payment is sure. Priced Catalogues sent to post-paid applicants who enclose stamps; also, a Wholesale Catalogue for Nurseries.

Those who desire large quantities or special assortments, can send their lists to us to be priced.

N. B.—Scions of the six finest European Osiers at $20 per thousand. March, 1853.—1t.

Patent Mammoth Premium Corn-Stalk, Hay, and Straw Cutters & Grinders.

CAPABLE of preparing 100 bushels of Corn-stalks, or One Ton of Hay or Straw, per hour, and reducing the largest Corn-stalks to the consistency of Cut Straw, avoiding the necessity of steaming or soaking, and saving 80 per cent. over the common way of feeding fodder. Horses and Cattle will do as well on fodder prepared this way, as on the best hay. The First Premiums have been awarded at every exhibition where they have been exhibited for competition. It can be worked by hand or power, without additional cost. The inventor will forfeit $50, after an impartial trial, when this Machine is used in preparing good fodder, if it does not prove to save 80 per cent. over the common way of feeding fodder, and it may be fed in the same condition as the machine leaves it, without meal or soaking. Cows fed on fodder produce sweeter butter. Over 900 of these Machines have been sold. Price—$35.

☞ State and County Rights for sale.

Gilbert's Excelsior Thresher and Cleaner,

Accomplishing more, with the same power, than any other Machine. It can be driven with two horses.

Price—$200 and upwards, according to size. Horse Power included. Apply post paid to J. G. GILBERT,
[2-tf] 216 Pearl st., New York.

The Practical and Scientific Farmer's own Paper.

THE GENESEE FARMER,
A MONTHLY JOURNAL OF
AGRICULTURE AND HORTICULTURE,
ILLUSTRATED WITH NUMEROUS ENGRAVINGS OF
Farm Buildings, Domestic Animals, Implements, &c.

VOLUME XIV, FOR 1853.

DANIEL LEE, JAMES VICK, JR., & JOSEPH HARRIS, EDITORS.

P. BARRY, Conductor of Horticultural Department.

Fifty Cents a Year, in Advance.

Five Copies for $2—Eight Copies for $3, and any larger number at the same rate.

☞ All subscriptions to commence with the year, and the entire volume supplied to all subscribers.

☞ POST-MASTERS, FARMERS, and all friends of improvement, are respectfully solicited to obtain and forward subscriptions.

Subscription money, if properly enclosed, may be sent (post-paid or free) at the risk of the Publisher. Address to
DANIEL LEE,
November, 1852. *Rochester, N. Y.*

STEREOTYPED BY J. W. BROWN, ROCHESTER, N. Y.